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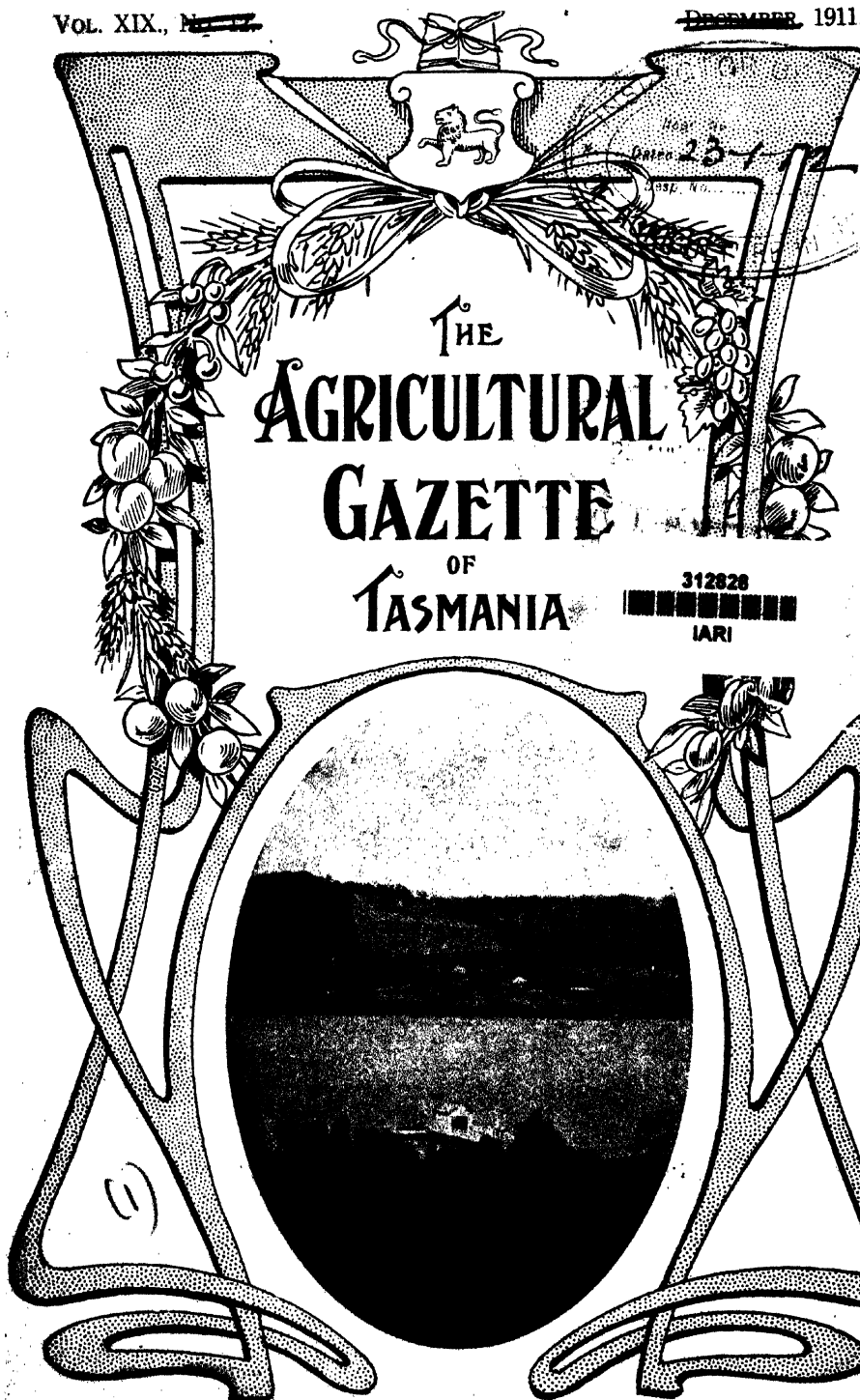






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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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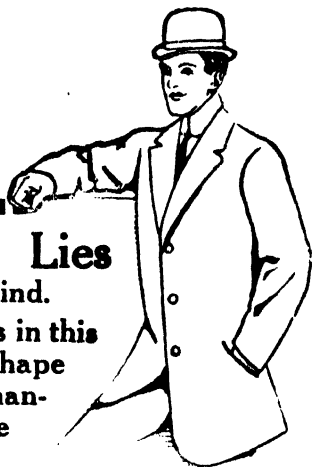
## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

The "Gazette" is sent free to all members of Boards of Agriculture. Any member not receiving a copy should communicate with the office at Hobart.

Correspondents are requested to send in matter not later than the 5th instant.



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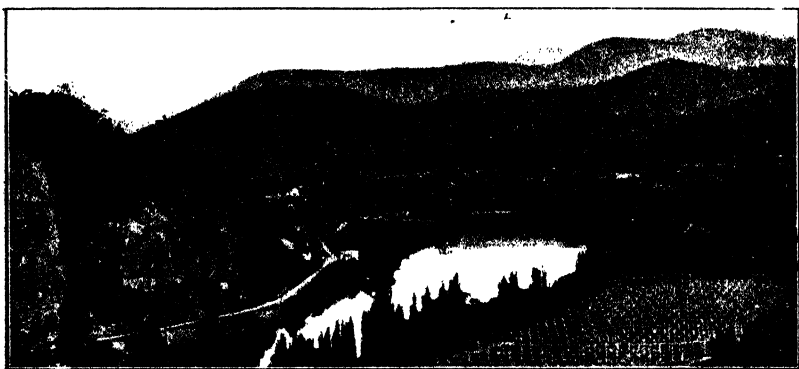
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# The Agricultural Gazette

THE JOURNAL OF THE AGRICULTURAL DEPARTMENT,  
TASMANIA.

NEW SERIES.  
VOL. XIX., No. 1.

JANUARY, 1911.

PRICE  
THREEPENCE

## FOREWORD.

**W**ITH this issue a new era begins in respect to the diffusion of agricultural literature amongst our rural workers, and it is hoped that an increased amount of interest will be manifested by members of Boards of Agriculture. That the Department is striving, as far as the Parliamentary vote will allow, to put useful suggestions before farmers in an attractive form, the altered shape of the journal testifies, and it remains to be seen that a ready response will be made on the part of those remote from cities.

The year 1911 opens with a bright prospect in respect to a sustained effort on the part of farmers to utilise the services of the experts, and the knowledge to be disseminated from the Department through the medium of the Boards of Agriculture. A general tone prevails as to the necessity of the State undertaking the gradual amelioration of the man on the land; and now that this has been created, a heightened reciprocity between the farming community and the public servants dealing with agricultural education can be fostered.

When it is generally understood that the State policy is to organise farmers in the various centres, and create, as it were, a local branch of the Department, the interest of members alive to their own interests



must expand more and more as time goes on, and the benefits arising from being affiliated with the Department reveal themselves.

No effort on the part of the State, from an agricultural standpoint, can be allowed to have fulfilled its mission unless it finds its way into the hands of the farmer, and no farmer who displays an intelligent interest in the working of the Department, reads its literature, and avails himself of the services of the experts, can, after a few years, but admit that he is decidedly the gainer thereby.

It is not as if the attainment of such knowledge was only accessible through costly channels and at centres remote from his farm; on the other hand, the progress is shorn of expense, and the experts are prepared when required to visit him on his own property.

Some remarks on the need of the maintenance of interest in the departmental efforts might be set forth, inasmuch as in no walk of life are distinct advances made by leaps and bounds supported by spasmodic attempts. The education of children is not a matter of months, nor can a thorough grasp of the principles of agricultural practices be accomplished in a short period. Furthermore, the varying changes, both in respect to systems in every department of the farm, resulting from costly and painstaking researches throughout the world, render it incumbent upon the farmer to watch with vigilance any fresh development which may arise. The only reasonable way that this can be done is for rural members to link themselves up with the Department, because it is here that the literature from all over the world is received and studied by a staff of officers whose duty it is to do so. As an instance of this, it might be cited that the Director recently wrote to the authorities at Washington for the departmental publications dealing with forestry, and there has come to hand a mass of literature which will prove of incalculable value to the officers interested in the work of the State Nursery. Some 64 volumes and nearly 200 bulletins dealing with raising of conifers and forestry practices generally have been received, and the State is the gainer thereby.

It has been noted in not a few parts of the State that the standard of education will have to be raised before an intelligent interest in the work of the Department is taken. This is to be regretted, but with the extension of the Education Department into outlying parts it is only a matter of time to surmount this difficulty. Centres have been visited where there appear to be no leaders to take in hand the formation of a Board of Agriculture, yet on the other hand isolated occasions have been seen where the standard was just about high enough to misunderstand the situation and throw cold water on the movement.

What will be a great help to the maintenance of Farmers' Clubs or Boards of Agriculture will be the initiation of experimental areas of a character suitable to the systems of agriculture prevailing in the different districts. Discussions at the meetings will be helped by visits to the plots and the distribution of seeds of the promising varieties tested, the

results of employing different fertilisers, and demonstrations with spraying materials, pruning, drainage, &c., all help to encourage the farmer in his labours.

Considering the brief period that the attempted revival and extension of the Board system has covered, there is sufficient evidence forthcoming to lead one to hope that a general organisation of farmers working in harmony with the head office is within reach of being consummated and concurrently a wide dissemination of useful knowledge among the rural population of Tasmania.

### SOIL FERTILITY.

WHEN one reflects for a while on the fact that agriculture has been carried on in Europe and other parts of the Northern Hemisphere for centuries the question of impoverishing the soil becomes an interesting subject. A fertile soil depends upon the use to which it is put, in order that one can fully appreciate the word "fertile." Soil usually selected to grow apples would not in its natural condition be adapted for potato culture, and many other examples might be cited where what favours one particular crop does not suit another. Many people think that good management with a judicious application of artificial manure will enable any crop to be produced on every class of soil. Theoretically this may be correct, but if attempted in practice financial losses would result. Whatever does not immediately or ultimately yield a credit balance should have no place in the domain of agriculture. It is best to realise that certain classes of soil are best fitted to produce certain crops, and other soils a totally distinct variety, whilst another type of country is best left alone. That this is borne in mind is why we find different systems of agriculture in not only different parts of the world, but also that of our own State. The natural result of a lengthy period of bad agricultural practices would be the impoverishment of the soil, and we have noticed in the past frequent allusion to impending famine owing to the exhaustion of different soil ingredients. On the other hand, it is possible to so conduct one's farming operations that although yielding a crop the soil can be built up as regards fertility for future production.

In this latter connection particularly interesting data is forthcoming from exhaustive inquiries made by the United States Department of Agriculture. The results of investigation reveal the fact that although the soils of northern Europe have been in cultivation for centuries, the yield per acre is twice that of the newer soils of the United States. This result has been achieved owing to more intensive and more intelligent methods of soil control. Chemical analysis of the soils of both countries have been compared, and show no significant difference in chemical composition, nor has the microscope revealed any dissimilarity in the mineralogical character of the soils of Europe with those of the more recently taken-up areas in America.

When the small amount of mineral matter taken up by a growing crop is thoroughly understood it becomes clear how the employment of intelligent methods of control results in an increasing fertility rather than a decline in the soil's producing capacity.

The amount of mineral matter taken from a soil by a 30-bushel crop of wheat, including the straw, is only 172 lb. The weight of such a crop when dry stands at 4183 lb. The difference represents moisture and carbon, &c., derived from the atmosphere. If, however, we confine our attention to the grain, presuming the straw to be returned as manure, the amount of ash extracted from the soil is only 30 lb. Of this quantity the largest ingredient is 14.2 lb. of phosphoric acid. Now, supposing, on analysis, the soil contained only .1 per cent. of phosphoric acid, the total quantity in 9 inches will be from 2250 lb. to 3000 lb. per acre.

There are what are termed restorative crops, inasmuch as they are not sold off the farm, and possess deep-rooting habits, which result in mineral matter being brought up from the subsoil and left near the surface on the decay of the roots. Again, the clover family can stock a soil with nitrogen drawn from the atmosphere. We thus see that the operations of the farm can be so carried on that the land becomes increasingly fertile, yet on the other hand instances of failure occur from time to time, occasioned through individual farmers running down the condition of their soil through neglect and want of an intelligent system.

## CULTIVATION OF THE APPLE.

AFTER the lower levels had become planted with fruit-trees, and the growth of the apple trade widened, the areas on the hillside carrying a more or less trashy soil, with clay beneath, were brought under cultivation, and it is generally the popular conception that any soil will suit—drained, of course—provided there is clay beneath. The idea of growing fruit on the chocolate soil of the North-West Coast was not favoured, and yet Mr. Percy Tucker's orchard of about 40 acres, at Scottsdale, appears in no way behind any in the South, either in the growth of the trees or the returns from the sale of the fruit. Again, we have at Sandford, orchards growing in practically pure sand. Mr. Morrisby states that if they go down 5 feet they strike fresh water, and that although planting was considered risky, they did so, and to guard against the soil blowing they only cultivated immediately around the young trees. Now, of course, the outer rows of mature trees act more or less as a breakwind to the remainder of the orchard. The foregoing is of particular interest, because so many people are wedded to the idea that a clay subsoil is indispensable. Methods consecrated by years of practice yield slowly to the changes brought about by the result of experiments, and ideas once conceived are difficult to dislodge. Provided the cost of bringing the land under cultivation, either in respect to the removal of timber, transport charges, or freeing the soil from rocks and stones, is not too great, the conditions

in respect to apple-growing in Tasmania appear to be such that no hard-and-fast rule can be laid down, or no class of land rejected as unsuitable to produce fruit of high quality.

There has come to hand recently an intimation to the Fruit Expert (Mr. J. Osborne, Jun.) from A. K. McGaw, Esq., manager of the Van Diemen's Land Company, that the company intends planting an experimental orchard at Woolnorth, in the vicinity of Cape Grim, which is the most north-westerly point of Tasmania. This should pave the way for a more general appreciation of the value of the so-called "plain" country, hundreds of thousands of acres of which are lying idle at present between Montagu and Marrawah. Draining, sweetening (liming), and shelter-planting will have to be done in every instance, but as there is only a dwarf ti-tree scrub to be chopped up, clearing is inexpensive, and as a plot of ground 4 feet wide and 12 feet long is sufficient area to raise 10,000 seedlings of *Pinus radiata* the production of wind-breaks should not be a matter of much expense.

### FORESTRY.

THE proper supervision of country carrying timber is important for the following reasons:—

The supply, if not regulated, tends to decrease, and eventually runs short.

Forests exert a beneficial influence in respect to preventing floods, and the rapid dissipation of rain when it falls.

Timber trees can be utilised as protection to farm lands from gales in exposed situations.

Vegetation exerts a purifying effect on the atmosphere by increasing the amount of oxygen.

Many trees confer an annual deposit of fertilising material in the form of fallen leaves.

The beautifying effect of well-planted trees, either singly or in clumps, alters the landscape in the highest degree.

Some farmers object to planting trees round their paddocks on the ground that the soil-exhaustion is so great. It is quite impossible to "have one's cake and eat it too," but the benefits conferred by a break-wind on the surrounding country far outweigh the immediate loss of moisture beneath the trees. Clothier makes reference to this in Bulletin No. 288, issued by the Department of Agriculture, U.S.A. He states: "An objection to growing trees along fence-lines has been made by farmers on the ground that such trees steal the soil-nourishment from the crops which are on the edges of the fields. It is true that healthy, vigorous trees make great demands on the soil-moisture in their immediate vicinity, but wherever their influence is felt as wind-breaks they conserve enough moisture, by preventing rapid evaporation, to more than pay for all that they use. By planting a deep-rooted crop like alfalfa (lucerne) under the shade of the fence-line trees, good returns from the

land may be secured in spite of the fact that the trees absorb a part of its moisture. It is a great mistake to begrudge a useful tree the space it occupies, and particularly so in naturally treeless country."

There is little doubt that when an enlightened interest is awakened to the benefits of planting trees many of the at present wind-swept non-productive areas in this State will be taken in hand and converted into fertile country.

The growing of conifer trees at the State schools for distribution, if put on a proper footing, should afford a valuable channel through which an extensive planting could be carried on. Plots 4 feet wide and 12 feet long will raise as many as 10,000 seedlings, and if several centres throughout the State were operating at one and the same time, the joint efforts of the State Nursery and the school gardens would in a few years become a potent factor in indirectly increasing the production on our farms.

### THE MANGEL-WURZEL.

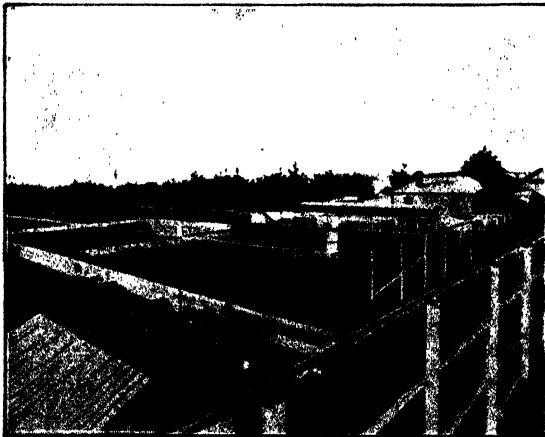
THE early feeding of mangolds to stock in times of scarcity of other roots has long been recognised as incurring certain risks as regards the health of the animal, but the reasons for this may not be as widely known as it is desirable that they should be. In general farm practice, when such roots as turnips or swedes have been a satisfactory crop, the appearance of the mangold in the diet of stock is generally delayed until the root has been stored for some time. On the other hand, many dairy farmers contend that the mangold, if used judiciously, may give valuable results, even when fed soon after the crop has been lifted.

Before touching upon the derangements likely to occur when this fodder is injudiciously employed, it would be well to lay special stress upon the fact that seasonable influences have a great deal to do with the state of maturity reached when the crop is first dug. It is therefore quite clear that the early feeding of mangolds may be dangerous in one year and comparatively harmless in another. In the case of a favourable season, which would result in the steady transference of the food constituents elaborated in the leaves to the roots at the time of digging, the crop would be a well-ripened one. When, however, a cool, showery season occurs, the roots at digging-time may easily be in a very immature condition.

The subject is now divisible into three classes: What is the effect of feeding early mangolds injudiciously? What causes the derangement? And how can it be prevented? The result of feeding immature roots freely to stock gives rise to "scouring," whereas this is not the case if the roots are stored and fed at a later date. From analyses made of mangold roots, it appears that soon after they are lifted in the autumn they are full of nitrates—the condition in which the nitrogenous or albuminous food is formed in the soil, and which upsets the digestion. By keeping in storage for a time maturation processes result, just as occurs with stored cheese, in the proportion of the indigestible materials

diminishing, and other classes of proteids appear on the scene. A part of the nitrate-nitrogen becomes an amide, which, if possessing little feeding-value, is at any rate harmless. There will also be found an increase in the albuminoids and peptones, which are of the highest feeding value. It has been found, however, that in circumstances where early feeding of mangolds is unavoidable disaster can be averted by giving the root in moderation, not more than 30 lb. per head daily, and if there be associated a plentiful supply of long hay or bean meal. Should the quantity of mangolds given approach 40 lb. per head daily, "scouring" will most probably appear, and when this is the case the supplying of long hay in quantity will prove no palliative. Both cotton cake and bean-meal will soon check the tendency to "scour," and that, of the two, bean-meal proved the more satisfactory, by giving the larger increase in live weight.

It was noticeable throughout experiments carried out by the Royal Agricultural Society of England that the feeding of mangolds in the early stages produced a feverishness which was not the case when swine were similarly fed. The animals always took the quantity supplied them with avidity. It was clear that if the substitution of mangolds for the earlier roots is a necessity, it can be carried on provided a small quantity, say up to 30 lb. per head daily for three-year-old bullocks, be given at first along with bean-meal or cotton-cake. The quantity can be increased gradually up to 45 lb. or 50 lb. as time goes on without being injurious. From experiments carried out upon sheep it appears that mangolds can be fed to sheep in place of swedes without danger of scouring if a small quantity of cake be fed along with the roots. With respect to the feeding of mangolds freely to male sheep, it is generally held that this food has a tendency to act on the kidneys, producing increased secretion of urine, and in extreme cases the formation or deposit of potash crystals in the urethra.



A Poultry Farm.

## MOISTURE IN BUTTER.

By A. CONLON, Government Dairy Expert.

THE percentage of moisture in Australian butter has increased to a somewhat alarming extent during the last few years, and the present-day buttermaker is showing a decided tendency to load his butter with water up to the limit allowed by law.

In the early days of the factory system Victoria secured a high reputation in Great Britain for the quality of the butter sent, but within the last few years complaints have been numerous, and the hardly-earned reputation for quality has suffered in consequence. It is more than probable that *excessive moisture* is the principal cause for the undoubted deterioration of much of the butter exported at the present time. In 1896 the late Mr. David Wilson, then Dairy Expert in Victoria, arranged for the analysis, by Mr. Pearson, of butter forwarded for export, when the average percentage of moisture in 48 samples was found to be only 11.14. Reports from London speak of the large increase in the amount of *fishy* butter noticed in last year's supplies from Australia, and there have been widespread complaints as to excessive moisture; in fact, it is now the opinion of most buyers that fishiness is directly due to moisture in excess. But in connection with this phase of the question the point has been raised, that if the moisture in Australian butter is kept below the legal limit set by Great Britain, viz., 16 per cent., no objection can be taken, and the term "excessive moisture" has no just application. This is quite reasonable, but the object of the present article is to induce the directors of Tasmanian butter factories to give this question of moisture in export butter fuller consideration, with a view of deciding definitely whether they shall endeavour to capture the confidence of the British buyer by limiting the moisture within reason, and so prevent any further tendency to decline in values; or insist upon making the largest possible amount of commercial butter from a given amount of milk-fat by incorporating water to the fullest extent allowed by law.

The best butter will always realise the highest price, and bearing this in mind the suggestion is here thrown out that a few boxes of Tasmanian butter, with varying amounts of moisture (as ascertained by analysis), but made under precisely similar conditions, should be forwarded to London, and examined critically, a report submitted, and the butter reshipped to Tasmania for a final examination here. This somewhat severe test would probably give valuable results as to the influence of moisture on the keeping qualities of butter under the actual commercial conditions of transit.

Twenty years ago the farmer received payment for his milk upon the basis of commercial butter, and the term *overrun* had not been invented. With the advent of the home separator, and further education in the technique of dairying, payment was made upon the basis of milk-fat,

and the question of overrun became a very live one, inasmuch as manufacturers found that a new source of profit had opened up, and they were not slow in availing themselves of it.

The increase of the churn over the test, or the difference in the original amount of fat in the milk or cream and the amount of commercial butter made therefrom, is now generally spoken of as the overrun, and it is obvious that such overrun will vary in amount in a direct ratio to the amount of water incorporated, or in other words the percentage of moisture in the butter. There is no getting away from the fact that it is this craving for increased profit which has led to the big overruns and moisture percentages of Australian butter to-day.

But it is manifestly unfair to throw blame on the buttermaker when it is a well-known fact that a strict record of the daily overrun is now kept at most factories, and in too many instances the man showing the biggest overrun is considered, by the directorate or proprietary, *the best buttermaker*.

This is where the real danger lies, and this system of forcing an overrun will sooner or later have very serious results for Australian dairy-men.

No blame can be attached to the factory supplier generally, who is quite unconscious of this suspended sword of Damocles; it is the proprietors of private, and directors of co-operative factories who alone are to blame in the matter. And it is their action which will ultimately force on legislation, whereby the limit of moisture in Australian butter for export will be fixed at a sufficiently low standard to ensure the British buyer getting what he desires and asks for.

The buttermaker of to-day has learnt the pernicious art of *controlling* the moisture contents in butter. This simply means that under compulsion, and with a view of complying with the demands of his employers, he resorts to brine-salting, higher temperatures for churning and wash waters, &c., for the purpose of manufacturing an artificial overrun, by increasing the water contents of his butter. The contention that a dry butter is difficult to work into "print" form, and gives the butterfakers undue opportunities, will not hold water when it is remembered that to increase the moisture it is necessary to follow a method of manufacture that never did, and never will, produce a really high-grade butter.

An absence of lime in the soil means that manures such as superphosphate and those containing potash and ammonia do not remain in the soil.

In milk there is an ingredient known as milk sugar. It does not occur as such in the fodder, but is built up in some way from the materials ingested by the aid of ferments.



## SUMMER PRUNING.

By J. OSBORNE, JUN., Horticultural Instructor.

SUMMER pruning is an operation performed on fruit trees, young and old, that are given to producing leaf and wood in such quantities as to seriously interfere with the profitable production of fruit. All trees respond to the treatment, the change to fruitfulness being very rapid. The tendency of trees well planted is to produce chiefly leaf and wood. This should be encouraged, especially in those up to six or seven years of age, when the fruiting faculty should receive attention. If delayed at this time the wood-making tendency may become fixed and cause serious trouble. While at this age the trees are very susceptible to treatment, and on the first intimation of a change in the methods of pruning, an altered form is at once taken on, the buds on the lower branches (previously submerged under a mass of foliage), begin to fill up, and very soon produce a couple of small leaves. These increase in size, bringing the buds along at the same time. During the growing season these buds in many cases become sufficiently mature to produce a cluster of fruit in the next season. The buds below and in the vicinity of those fruiting will receive a greater amount of nutriment, and will follow, during the next season, those that fruited the previous season, thus rapidly increasing the fruiting power of the tree. Apricots, peaches, nectarines, apples, pears, and plums seem to be equally susceptible to treatment, and in the case of these fruits one year has often been found sufficient to bring about a fruitful condition, especially if careful attention has been paid to cultivation. To be successful in pruning one must have due regard to equal distribution of the leaf-surface, the leaf being the lung and stomach of the tree, and also providing the power by which the crude sap, as collected by the root fibres, is conducted to its surface, there to be elaborated or prepared, and then returned in a form known by plant physiologists as "proper juice," or food fit for the use of the tree. These operations are much assisted if provision is made for large supplies of solar light. Owing to their rapidity of growth and development the trees first treated should be stone fruits. The apricot will be ready during January, and the peach also. The rule as laid down in respect to leaf-distribution will apply in this case. All surplus shoots should be removed. Where more than two are together, the balance should be taken off, and those left (except leading shoots) should be headed back to a length of 2 inches, leaving a couple of pairs of leaves to provide nutriment for the basal buds. Should the branches or leaders crowd each other, and prevent the free entrance of light, those in the centres may be at once removed, or (if fruiting) should be taken out as soon as the fruit is gathered. There will be no loss of energy, as the nutriment supplied by the root system will be diverted to other channels, giving larger supplies to the branches that are left. The removal of extra limbs

will admit the light more fully, and the result will be a more thorough ripening of the wood-growths and a greater fruiting power generally than was the case previous to the treatment mentioned. The operator must in all cases leave the leading shoots intact, for it sometimes happens that the pruning is followed by a heavy fall of rain. This causes the roots to become very active, and large supplies of sap are collected and sent up into the tree. Should the whole of the shoots receive a pruning, as is sometimes the case, the excess of sap due to the moisture present in the soil would cause a general outbreak of young wood from all portions of the tree, and would defeat the object aimed at; but the work, if well done, allows the leaders to act as safety-valves, and the surplus sap will be provided for and the ripening process not interrupted. It is assumed that a sufficient number of leaders have been retained, and there will be no need for duplication. Therefore, where there are from one to three or more shoots arising from the previous pruning, one only of these shoots should be retained. In following this rule it will be found easy to arrive at a proper distribution of the leaf-surface, so necessary if a balance is to be maintained between leaf, wood, and fruit. In the case of the plum-tree, it is necessary to remember that fruit is chiefly produced on two-year-old wood. This makes it necessary to preserve at the summer pruning a fair percentage of short, stiff lateral branches for fruiting during the next season. These branches should be provided at each pruning, and each year will see an increased production of fruit. The fruiting of the apricot and peach is done by buds that developed on wood produced and ripened during the previous season, and the greater the care bestowed on the tree during the summer the greater will be the production of fruit in the following season. In the case of the apple and pear the fruit is produced on what are known as permanent branches, or spurs, that may be found in all parts of the tree, according to treatment given; but the principle laid down for stone fruits may be safely followed. The time when the operation may be performed with best effect varies slightly. In the drier districts of the State orchardists may begin at the end of January, continuing till the middle of February. In the districts where conditions are cool and moist the trees should be left till the middle of February, as the rate of development is much slower in such places. The whole of the surplus shoots should be removed, heading them back to within 2 inches of the base. Short shoots that are thickened at the terminal bud may be left uncut, as it is likely that they will produce fruit during the next season. These shoots stop growing early in the summer. A whorl, or cluster of leaves (usually three) is formed at the end, and continues to draw supplies during the balance of the season, finishing with a fine plump bud. If a fair percentage of these shoots is preserved, the wood-making habit of the trees will become modified, and the need for summer pruning much less. There are some varieties of apples that require more care, owing to certain peculiarities. These produce their first fruits on what

are known as "laterals"—branches produced from the leader having a lean to the horizontal. In pruning these trees care should be taken to provide the number of fruiting branches required, the balance, except the leaders, being shortened to about 4 inches in length. This will be sufficient check, and will allow the free access of sunlight to the whole of the tree, the ripening will go on rapidly, and the whole nature of the subject quickly changed. In the case of the pear-tree the same method should be followed, varied, perhaps, by allowing a larger percentage of laterals to remain uncut in order to steady the wood-making tendency, which is more pronounced in the pear-tree. It is said by some growers that any interference during the growing season with a fruit-tree is unnatural, and should be avoided, as it interferes with root action, and when the cutting is done (as is often the case) too early in the season harm may arise. It has been found that summer pruning as indicated is of immense value in promoting fruitfulness in trees that previously did little but grow leaf and wood, and when the fruiting habit is firmly fixed it is quite unnecessary to proceed with the treatment, the object having been attained.

### DISEASED WHEAT PLANTS FROM BURNIE.

The following is a report by the Government Botanist (Mr. L. Rodway) to the Director of Agriculture, on some diseased wheat plants from Burnie:—

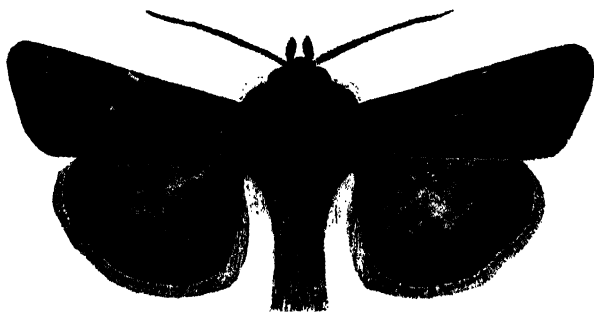
"I have examined the wheat plants forwarded from Mr. Hays. They are badly infested by grass mildew (*Erysiphe graminis*, D.C.). The perithecia (the winter condition of the disease, which will germinate next season if not destroyed now) are present in abundance, so there is no possibility of error. I have met with it before on introduced grasses in damp, shaded localities. Tubeuf says:—'Grass and cereals, especially wheat, often suffer serious damage from this parasite. . . . This mildew has inflicted great loss both in Europe and America. Dusting the threatened crop with "flowers of sulphur" will probably check the first stages of an attack, but care in destroying infested crops is by far the most effective preventive.' The disease is likely to spread rapidly, at least in localities where damp conditions obtain in spring and early summer. I venture to suggest the most drastic measures should be taken to cope with it, namely, immediate destruction of infected crops. The parasite will not spread to other plants than grasses. Rose mildew (*Sphaerotheca pannosa*) and powdery mildew of apple and hawthorn (*Podosphaera oxycantha*), both common with us, are closely allied parasites. Hop mildew (*Sphaerotheca castagnei*) must sooner or later make its appearance in our hopfields, and should be looked out for. A few pastures of rust also were present on the flags of the wheat, but were not responsible for the diseased condition."

## THE BARLEY GRUB.

By ARTHUR M. LEA, F.E.S., &c., Government Entomologist.

A VERY troublesome insect in the grain-growing districts of Tasmania is one variously known as the barley grub, oat grub, army caterpillar, cut-worm, &c., and in its winged form belonging to the moth *Mamestra cwingi*.

Barley and oats are particularly liable to attack, and are most seriously injured just about the ripening period; for then the grubs as a rule bite through the stem just below the ear, with the result that the crops are seriously reduced in value, and in bad cases appear as if the stripper had been through them. A loss of half the crop is not at all uncommon. When the flag, however, covers the knot below the head the grub frequently travels to the head itself, and there nibbles the outer coverings of the grain, doing a certain amount of damage, although, of course, far less than when the stem is bitten through.



Moth of the Barley Grub (enlarged).

They are usually most troublesome in early summer, for then, having more or less exhausted the food growing close to the ground, they appear to be seized with a desire to travel, and march about in immense armies, all moving in the one direction. Such an army will devour practically everything green in its path. On several occasions on the North-West they have passed through paddocks of potatoes, stripping every leaf, so that the bare stems only were left.

They feed on many kinds of grasses and other fodder plants when young, consequently they are well known in many parts of Tasmania where grain is not commonly grown; but it is in the grain-growing districts that they are best known and feared.

At Scottsdale, on one occasion, the grubs after destroying a crop of Algerian oats, travelled to an orchard, where they bit off the apples at the stem when they were about the size of walnuts. Sometimes they only partly bit the stem through, so that the apple grew on for a time, but afterwards fell. They also bit off many leaves. They never seemed to eat the leaves or apples, but only the stems.

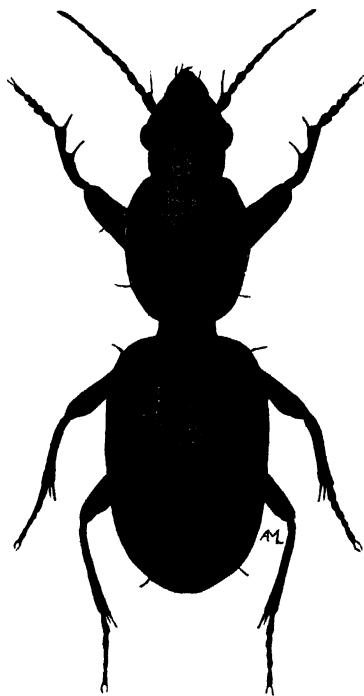
The grub is of a greyish colour, with several dark stripes on the back and sides. When full-grown it is about an inch and a quarter in length.



The Barley Grub (enlarged).

It then constructs a cocoon in the earth, and turns into a chrysalis; this is about two-thirds of an inch in length, brown, and with two minute spikes at the tail. The moth itself is rather more than an inch across the expanded wings, of a slaty-grey colour, with somewhat mottled front wings. A closely allied species (*M. composita*) is very destructive to the tomato.

These insects in Tasmania in some seasons are largely destroyed by various parasites and natural enemies. A very common, olive-black,



A Useful Beetle (*Promecoderus ovicollis*), enlarged.

night-moving beetle, known as *Promecoderus ovicollis*, feeds on them in large numbers; the same beetle, which is about two-thirds of an inch in length, feeds on the underground grass grub and many other destructive insects. A bronzy-black shield bug, of the *Pentatomidæ*, also feeds on

them; it is about one-third of an inch in length, but may often be seen walking off with a caterpillar considerably heavier than itself.

A fly, in size and shape much like a common blowfly, but of a greyer hue, also destroys many of the larvæ. But probably the most useful parasites against it are ichneumon flies. Of these the commonest appears to be a species about half an inch in length, black and red, with white bands on the abdomen and black and red legs. As a larva it lives within



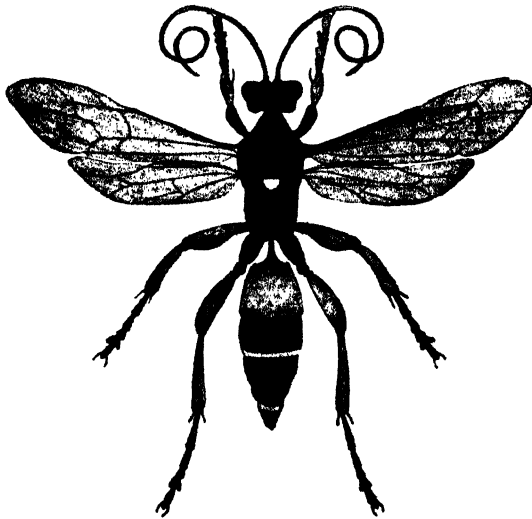
Parasite emerging from Pupa of Barley Grub (enlarged).



Pupa of the Barley Grub (enlarged).

the body of the grub, and often allows this to turn into the pupa, afterwards eating its way out (as shown in the figure) through the back.

Another species lays its eggs on the neck of the grub. Its larva on hatching out still lives on the neck, and gradually drains the grub of its juices, so that it dies without forming a chrysalis. The parasite then works its way into the ground, where it forms a black cocoon, afterwards



A Common Ichneumon Parasite of the Barley Grub (enlarged).

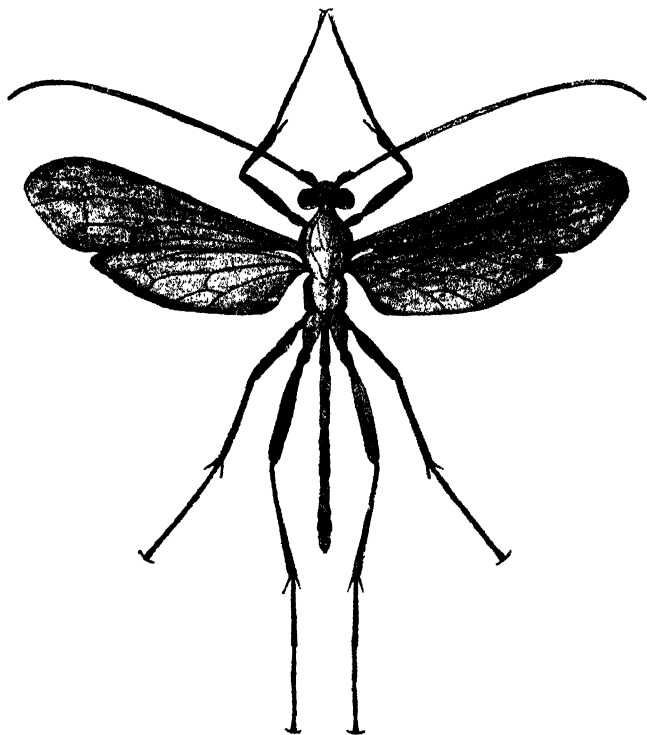
appearing as a very narrow reddish-winged insect of the genus *Paniscus*, which may often be seen at lights on sultry nights.

One of our very common ichneumon flies, *Pimpla intricatoria* (a black species with white markings on the abdomen and red legs), may also be reared from the grubs.

When travelling from the bush into a field of grain they can be prevented from attacking this if a deep furrow is ploughed at right angles to their line of march, with the sod turned away from it, and a deep hole

dug in the furrow at intervals. The grubs, on coming to the furrow, fall into it, and instead of climbing up on the other side will crawl along the furrow till they come to one of the holes, and in these holes they can be destroyed in millions. Or large numbers can be destroyed by rollers, or by heavily poisoning a strip of grass which they must pass.

In the "Agricultural Gazette" of New South Wales, for March, 1907, Mr. Froggat gives details of a fight against a similar serious grain-attacking pest at Tamworth. The materials used were bran, Paris green, sugar, and salt, and of these he says:—"The bran was brought up in bags, weighed, and 1 lb. of Paris green added to every 16 lb. of bran.



Another Common Ichneumon Parasite of the Barley Grub (enlarged).

The bran, after being weighed, was poured out on large bag sheets, the Paris green scattered through it, and two men with long-handled shovels mixed it up thoroughly. When the whole was of a delicate green tint, water was added from a hogshead, in which about half a bucket of salt had been added, so that it just had a salty taste. The first lot of poisoned bait used before I arrived had been flavoured in a similar manner with sugar. This had a hardening effect upon any bait remaining over till the next day, so I substituted salt, with very good results; the caterpillars seemed to eat it more readily, and the food remained moist at night. Enough water was added to wet all the

material, which was again mixed up by the shovel men until it was like a bran mash, and would crumble readily through our hands. Each heap consisted of a quarter of a bag of bran, and the bait was placed in about bushel lots. When six bags of bran were made up, we ran it out in a cart about 4 o'clock in the afternoon, to the paddock to be poisoned, and the bags were deposited at regular intervals along the headlands. At first it was sowed by men on foot, broadcasting it as they walked in line down the furrows; and as the crops had been all drilled in, very little of the barley was knocked down. Though, at first, some of the bait may have been wasted, the men soon used their judgment in spreading it very lightly where the crop was open and dry, while scattering it thickly in the denser parts of the field, particularly where some of the crop had been laid down by the storms, and under which the caterpillars were always most numerous. This was the method practised in distributing the poisoned bait while I was at the farm; but later on, Mr. Britten mounted his men on horse-back with a box containing the bait strapped on in front of the rider. He writes:—'We found that two men (while not doing the crop any more harm) could spread as much as 12 men on foot, and keep three men constantly mixing bran. After the first evening's poisoning we were up early next morning to see the results, and found caterpillars of all shapes and sizes lying dead, round every stool of barley; most of the dead ones were fully extended, and not curled up as in life. If you touched one with any life in it, it immediately contracted its body and curled round; but many of these were apparently very sick.' . . . Mr. Britten has furnished me with the following account of the cost of fighting the climbing cutworms, at Woodside, last October, which is as follows:—

	£	s.	d.
7 cwt. of Paris green, at 1s. 2d. per lb. ....	45	14	8
5½ tons of bran, at £3 3s. 4d. per ton .....	17	8	4
Salt .....	3	0	0
Sugar .....	6	0	0
Labour (rations not counted) .....	15	7	4
	<hr/>		
	£87	10	4
	<hr/>		

In all, 1070 acres were treated with poisoned bran; and though the expense may seem considerable and beyond the power of a small grower, Mr. Britten is convinced that if he had not taken these prompt measures to deal with these pests in a wholesale manner, he would have lost the greater part of all his English barley, as he did in 1903, when a very similar crop was totally destroyed by these cut-worms. The yield from this acreage was 32,000 bushels of barley. Mr. Britten estimates that if he had not acted promptly, he would have lost at least three-quarters of the total yield; as it was, he only lost from 3 to 4 bushels per acre."



## GARDEN NOTES FOR FEBRUARY.

By J. OSBORNE, JUN., Horticultural Instructor.

THIS will be a busy month, as much has to be done to prepare for the autumn season. All annuals will now be in full flower, and should be liberally supplied with water. An occasional hoeing is necessary to keep the soil loose and prevent the caking of heavy land. Dahlias will require assistance, and a dressing of liquid manure may be given after watering with fresh water. This should be applied at least once each week. The chrysanthemum bed will be better if given the same treatment. Rose beds that are to flower later should be kept hoed and well watered, and the branches thinned out in order to promote new growth. Strong young shoots give the best late blooms, and will keep flowering till well into the winter. All herbaceous plants that have done flowering should be allowed to rest for awhile, and during the late autumn a new set of blooms may be produced. Beds intended for flowering bulbs, such as hyacinth, narcissus, anemone, ranunculus, ixia, tulip, &c., should be well manured and dug up deeply prior to planting at the end of the month. Should the weather keep dry a good watering should be given at least two days before planting. Carnation, pink, and picotee cuttings may be put in during the first half of the month, a light sandy soil being used, and water supplied very carefully. Pelargoniums—regal, show, decorative, and zonal—may be treated in the same manner, keeping the cuttings a little drier than in the case of the carnation. Cuttings of the good antirrhinums should be put in also, as they will be required for early spring planting. Biennials that were sown in December should be ready for pricking out this month, and must be shaded till well established in the boxes. The early flowering gladioli will be ready for lifting, and should be stored in sand, away from rats and mice. Those flowering will require liberal supplies of water. China asters should be at their best just now, and where they are inclined to drop their heads some light stakes should be placed among them and tied up, for the weight of water may bring the flowers to the ground. Salvias will be flowering, and some side shoots must be taken off and inserted in sandy soil for next season's planting. Keep the hoe going as often as possible. As the annuals begin to die out, dig up the beds roughly for next month's planting of dianthus, Canterbury bells, pansies, &c. These beds must have a good dressing of well-decayed stable manure at the end of the month before being dug up afresh. Late in the month a sowing of sweet peas should be made for early flowering. Cuttings of Paris daisies may be put in, as they will be required in the spring. Sow such stocks as Brompton, East Lothian, Ten-Week, and Intermediate; these may be sown in the open if a little protection from the sun's rays is provided. Wallflower and pansy for spring flowering may be sown also.

In the green-house many plants will require attention. Cinerarias, calceolarias, and primulas that were sown late in December should be fit to handle. Choose small, clean pots. Make a good compost of well-decayed stable manure, loam, gritty sand, and leaf-mould in equal parts, and blend thoroughly before using. See that the pots are well drained, and when the plants are potted place them in a cool, airy corner, and water carefully. Pelargoniums—show, regal, and decorative—that have not been treated should now be cut down, and put aside to be allowed to make a fresh start. The cuttings, after being dipped in an insecticide, should be placed in sandy soil (around a large flower-pot if possible) to root, water being given sparingly. Tuberous-rooted begonias that have been flowering freely should receive assistance, liquid manure being given twice weekly immediately after the application of fresh water. The liquid manure may be prepared by placing a bag of fresh stable manure in a large tub of water, and allowing it to remain till the water has become the colour of coffee. The bag is then removed, and a new supply obtained when more liquid manure is required. Gloxinias that are in flower may be given the same treatment, and streptocarpus also. Seedling begonia, gloxinia, streptocarpus, &c., should be carefully lifted out of the seed-boxes, and potted singly in small pots, using a good light compost, and draining thoroughly. These should be kept in a cool, shady corner till established; use water sparingly till the plants begin to get ahead. All green house palms and ferns should be syringed twice daily—early in the morning and after sunset—and the foliage sponged occasionally. Ventilate freely, and keep the floor of the house moist, otherwise thrip and red spider, and also aphides, will become troublesome. The dracæna or cordyline, with other large foliaged plants, should be treated in a like manner. The primula, obconica, and grandiflora that have been flowering freely should be given a rest for a time, so that a good blossoming may be obtained from them in the late autumn. After drying the soil for a few days, it may be shaken off, and the plants repotted into a well-prepared, rich compost. These plants pay handsomely for good treatment. Should aphides appear a light fumigation with tobacco will dispose of them.

In the kitchen garden the hoe should be always in use. All growing vegetables must be closely watched, and water given without stint. A good sowing of beans (Canadian Wonder) may be made, also spinach, radish, strap-leaved turnip, lettuce, cabbage, and cauliflower. Celery and kale should receive attention. A sowing of onions and (if water is plentiful) a sowing of Yorkshire Hero peas may be made now. These will be ready about Easter, and will be a nice change. Cabbage and cauliflower that were sown in the early part of December should be planted, and will serve splendidly in the autumn. As the earlier sown crops become ready they should be removed, and the land well manured and dug up afresh ready for another crop. Attend closely to the watering, especially in connection with such crops as cucumbers, marrows, and pumpkins.

Tomatoes should be ready, and should be watched closely for signs of the grub. If the beds are kept free from weeds there will be less likelihood of the grub attacking the fruit. A sowing of Broad Windsor beans may be made; the seed to be given plenty of room, as they will grow into large plants before fruiting in the spring.

## DELAYED EMERGENCE OF CODLIN MOTH.

NUMBERS of fruitgrowers in isolated parts of Tasmania, desirous of stamping out the codlin moth from their orchards, have picked the whole of their apples and pears for one season. This usually has had the desired result, but not always; and the reason for the occasional failure appears to lie in the fact that under certain not well known conditions the insect may pass an extra year in the larval or pupal form before becoming winged.

In the Department three years ago some pieces of raspberry-cane were received from an orchard that had been badly attacked by codlin moth. In due season 17 moths appeared from the pieces of cane, which were then placed in one of the cabinet-drawers. But the following season two more moths emerged from the canes.

Two years ago a large number of grubby apples were placed in the departmental breeding-cages, and from these last summer hundreds of moths emerged. Of set purpose no more grubby apples were placed in the breeding-cages, but this season already five moths have appeared in them.

These conditions, of course, are artificial, but when one remembers the wandering habits of the grubs, and how easily they could be kept under dry and cool cover for long periods, it does not appear improbable that some of the mysterious appearances of the moth may have been due to such conditions. At least it is a factor to be remembered in dealing with the codlin moth, certainly the most troublesome fruit pest in Tasmania.—[A. M. LEA.]

Weeds are great rotters in the soil. Not only do they use up large quantities of moisture, but they compete with the growing crop for soil food, light, and air, and they possess the still further disqualification of harbouring several diseases which attack crops. The light-yellow weed known as charlock, and which can be seen conspicuously about the suburbs of Hobart and in the White Hills district, near Evandale, in springtime, is one of the worst arable weeds in this State. The oily character of the seed enables it to resist decay, and it may be dormant in the soil for many years, only to spring into activity as soon as it is brought to the surface. Spraying when the pest is about 3 inches high with bluestone in the proportion of 3 lb. of bluestone to 10 gallons of water is a ready means of destroying it. If rain ensues within 24 hours after the application it must be done over again. At least 50 gallons of the liquid should be applied per acre.

## OYSTER BAY PINE.

THE following letter on the above subject has been received by the Horticultural Instructor from Col. W. V. Legge, of the St. Marys district:—

Cullenswood House,

September 9, 1910.

Dear Mr. Osborne:

I have just returned from a three weeks' tour down the East Coast in the interests of that household stand-by of the farmer and settler—the Oyster Bay pine.

By exploration and inquiry, &c., I have extended its "distribution" both north and south considerably beyond its generally accepted limits, and likewise inland far beyond what (since the bygone days of the early settlers have passed from memory) has, in this generation, been considered its limit.

My trip was undertaken in pursuance of a promise made to the Premier last Christmas or thereabouts. I have visited the Government reserves and Crown lands rented (?), with a view to recommendations as to "conservation," "firebreaks," and thinnings (?), both as to the "whipstick" and "pole" stages of the young groves, as practised by the forester in New South Wales in the case of *Callitris robusta*, the White Pine (so-called "Murray," "Murrumbidgee," "Lachlan," Pine, &c.), and am confident that if the Government will only take it in hand (if a Board of Forestry is to be created) the output in quality and quantity of this splendid pine can be much increased.

I have taken notes of the great variety of soils and situations, and the elevations above sea-level, at which it will flourish—all of which point to the conclusion that it may be established in a variety of places throughout the island (preferably in the sea-coast districts for quick growth).

The uses to which it is put for buildings, &c., are legion. It is the constant stand-by of the settler wherever it grows in sufficient quantity.

I have worked up its physiology in regard to durability, strength of fibre, vigour of growth, even when cut half through, and "laid" like a hawthorn edge to "top" a "brush" fence! As regards the bole for timber (sawing-up, &c.), most of the finest old trees now standing have grown at a disadvantage—in the light—and "run to branch" too much. But still, from my measurements, I find in trees of 80 to 90 feet, and with a mean diameter of 2 feet 4 inches to 2 feet 7 inches, there is generally a "cutting length" of 40 feet in the bole. As usual, these trees (old "monarchs" in the open) have a much more uneven bole (in "section") than those grown in shade or gullies.

Trees of over 100 feet which I measured in a deep gully in the Swanston district had a fine even timber bole of over 50 feet in length, and circular in cross-section throughout.

Most of my photographs were a failure, I fear (under-exposed), which is a great pity as regards the illustration of my report.

If you have a good supply of plants from my seed it might be possible to get McPhail at Irish Town to do something with them. I almost fear the climate is too wet there. A start should be made at St. Helens school if possible. The Portland district is the one to which I have my eyes turned. McPhail has written to me for pine seeds. You can supply him, I suppose.

Believe me to be, &c.,

W. V. LEGGE.

### LIMESTONE DEPOSIT.

THE following is an analysis of a deposit of carbonate of lime made by Mr. H. J. Colbourn (Agricultural Expert). The deposit is on Mr. Fenton's property, near Smithton. In its original state the limestone was found to contain 29.30 per cent. of water. When dried at 100° C. for a considerable time, and until ceasing to lose weight, the composition was as follows:—

	Per cent.
Carbonate of lime... ..	89.50
Lime, apparently sulphate ... ..	4.90
*Organic matter ... ..	1.45
Insoluble matter ... ..	4.15
	<hr/>
	100.00
	<hr/>

\*Containing nitrogen, .358.

[The Director of Agriculture has inspected the above deposit, and although unable to form any estimate as to its extent is of opinion that it is of considerable magnitude, and will be valuable for applying to sour land when drained, or as a source of lime to any soil deficient in such. The deposit is in the form of a fine powder, which when dried will be in a good condition for applying. The application of lime in the above form will tend to correct any acidity in the land, and, further, will have a beneficial effect on many crops, especially those of the pea family, such as clover, lucerne, peas, &c.—ED.]

The nutritive value of a fodder will depend upon its age. The younger the plant the more easily digested are its component parts. This explains the value of grazing over a pasture as contrasted with hay.

Plants only take up their food in solution. The rootlets can only exert a slight solvent action, so that a soil may be charged with plant-forming material in an insoluble condition, and thus be unable to produce vegetation.

## SECOND EGG-LAYING COMPETITION.

THE following is the progress report for the seventh month of the egg-laying competition conducted at the Springvale Tea Gardens, New Town:—

	Month of Dec.	Total to date.
1. Black Minorcas, C. W. Calver, Launceston ... ..	69	488
2. White Leghorns, O. H. Olson, Karoola ... ..	122	908
3. Silver Wyandottes, W. T. Stephens, Beulah ... ..	96	820
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	93	764
5. White Wyandottes, A. G. Genders, Launceston ... ..	90	721
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	126	644
7. S.C. Brown Leghorns, East Launceston Poultry Yards, Launceston ... ..	109	760
8. White Leghorns, W. J. Camp, Wynyard ... ..	54	568
9. White Leghorns, G. Boatwright, Smithton ... ..	89	733
10. White Leghorns, Whiteway Bros., King's Meadows ... ..	36	483
11. Old English Game, J. Thorne, Waratah ... ..	94	564
12. White Leghorns, C. W. Calver, Launceston ... ..	107	825
13. R.C. Brown Leghorns, W. T. Stephens, Beulah ... ..	102	656
14. White Leghorns, C. R. Williams, Fingal ... ..	107	780
15. Black Orpingtons, H. R. Taylor, Launceston ... ..	109	666
16. White Wyandottes, A. G. Genders, Launceston ... ..	92	722
17. S.C. Brown Leghorns, F. Briggs & Son, Longford ... ..	94	755
18. White Leghorns, L. Dowling, Devonport ... ..	56	481
19. Silver Wyandottes, L. S. Hyland, Mt. Hicks ... ..	56	660
20. White Leghorns, O. H. Olson, Karoola ... ..	90	817
21. Black Orpingtons, Mrs. S. F. Clarke, Hobart ... ..	70	594
22. Buff Orpingtons, H. G. Spicer, Stanley ... ..	72	612
23. White Orpingtons, W. H. Hale, Strahan ... ..	82	665
24. White Leghorns, B. H. Whittle, Launceston ... ..	96	902
25. White Leghorns, F. A. W. Gisborne, Risdon-road ... ..	115	735
26. White Leghorns, Rust Bros., Claremont ... ..	73	761
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ... ..	119	878
28. White Leghorns, A. Sheriff, Hobart ... ..	98	761
29. White Leghorns, Mrs. Luke Williams, Moonah ... ..	85	762
30. Buff Leghorns, C. G. Gilham, Launceston ... ..	57	494
31. White Leghorns, W. G. Skidmore (Penville), Launceston ... ..	65	572
32. R.C. Brown Leghorns, F. Briggs & Son, Longford ... ..	102	772

A cow yielding 600 gallons of milk per year will, if the milk is sold, reduce the fertility of the farm to the amounts of 36 lb. of nitrogen, 12 lb. of phosphoric acid, and 10 lb. of potash. When cheese is made the losses diminish to 28 lb. nitrogen, 7 lb. of phosphoric acid, and 1 lb. of potash.

The effect of grazing land depends upon the age of the animals, or, if the products are sold, then there will be a great difference as to which article is manufactured. Young, growing stock require phosphates, &c., for their bones, and nitrogenous material is used to build up muscle and nerves. Store stock in fattening principally lay on fat, which is a very light drain on the soil, the valuable products in the grass being returned as manure.

## CORRESPONDENCE.

### SALE OF FRUIT TREES.

To the Editor of the "Agricultural Gazette."

Sir,—The recent lawsuit in Hobart, brought about by some fruit trees sold as two years old being in reality only yearlings, was no doubt watched with interest by orchardists throughout the State. It brings up a matter that is very serious to those who are still planting, because it is so essential to obtain only the best trees.

As a rule, most nurserymen have their travellers or agents, who take orders early in the season from intending planters, who as a rule order two-year-old trees, which are generally guaranteed by the agent. To come straight to the point, it is almost impossible to get what is commonly called a genuine one-year-old tree; the expression "genuine two-year-old" is quite a common one nowadays, and if one is lucky enough to get any, one boasts about it to one's neighbours.

How, sir, can a tree be otherwise than a "genuine" two-year-old if it is a two-year-old tree? If it is not, then it is either older or a yearling.

The great rush in planting orchards during the last eight or nine years put the nurseryman in an awkward position, because he could not grow the trees ordered fast enough. This position set him thinking, and the result is there has been of late years a most unsatisfactory product sold as a two-year-old, but really a headed yearling—still nothing but a damaged and stunted yearling. (How one could moralise on this!) I always order either two-year-olds or straight-stem yearlings, but I have to take what is sent me. They are, as a rule, tied in tens—two "genuine" two-year-old, five good headed yearlings, and three miserable runts that you try to cut into shape or cut right back—if you can. But as a rule our friend the nurseryman has prevented us by carefully cutting off all buds on the barrel—to spite us, as it almost seems.

Cannot legislation be brought about to stop this serious evil, for such it really is?

Firstly, a man has a right to get what he pays for and orders; secondly, it is injurious to the tree itself, because in many cases the second growth is stunted and badly grown, and the tree cannot be cut into a good shape.

It is not the agent's fault, because the trees are seldom seen by him, but are forwarded to the planter unopened by the agent. The planter, in his turn, cannot afford the time to argue the point, but has to do the best he can.

If the nurseryman cannot grow the trees in the required time or for the money charged, let him charge more for "genuine two-year-olds." Most would gladly pay it to get the best article.

I beseech them not to spoil a lovely year's growth that gives strength to the barrel and roots, to which when it is cut back at its proper time will send out three good young limbs of its own. If the matter is taken in hand by the right people, no doubt some good could be done. In the meantime, I am, &c.,

THOMAS BURNABY, Hon. Sec. Lymington Board of Agric.

Lymington, November 13.

Butter-making, when skim milk is fed to calves, is the least drain on the fertility of the farm, because butter is mainly milk-fat. Cheese-making represents a heavier drain, as the curd is nitrogenous; but it is when milk is sold off the farm that the greatest depletion in the soil fertility goes on.

## WEATHER AND CROPS.

**BARRINGTON.**—Wheat: This cereal is not grown largely in this district, but gives promise of a fair average yield. Some crops are rather weedy owing to excess of rain. Average yield about 25 bushels per acre. Oats: This is one of our main grain crops. Taking the average it will yield well, although in some instances it has been an absolute failure—particularly the White Giant variety—owing chiefly to few potatoes being grown in this district last season. As they require clean, strong soil, they have failed on oat stubble land, but seem to be all right after peas. Algerians have also failed in some instances owing to too much water lying on the land. This should be a warning to farmers to go in for better drainage. The average for Giant oats is 45 bushels, and Algerian 25 bushels, per acre. All other varieties—Sparrow-bill, Storm King, Cluster, and Golden Drop—about 35 bushels per acre. Barley: Very little grown. What there is looks exceptionally well, and should yield about 50 bushels. Peas: This crop promises some heavy yields, except in instances where they are a total failure. The failures have occurred in the early sown crops. Peas sown from about the last week in August to late in October have escaped the ravages of what Mr. Lea describes as a pea mite. No doubt they have been assisted greatly by the phenomenally wet season. Where a little superphosphate has been drilled in it has had a beneficial result. Leaving out the failures, the yield should be about 45 bushels per acre. Horse Beans: There are a few plots of this legume—a new crop for this district. They look well, and should come into favour as a pig fodder. Roots: Potatoes are the mainstay. So far as this crop has gone it promises to yield exceptionally well. It has not given better promise for four years. So far there are no noticeable effects from the Irish blight. Estimated yield, 5 tons per acre. The bulk of the turnip crop has only just been sown, farmers preferring late sowing to escape the ravages of blight. This is the first season that mangels have been generally grown, farmers putting from a  $\frac{1}{2}$  to 3 acres in as a stand-by for winter feeding, which is a step in the right direction.

**BEULAH.** The crops generally are very good, especially oats, peas, and grass seed, all of which promise to turn out well. Only a small acreage of wheat is grown in this district, and the crop this year will be only moderate. The acreage of potatoes is not up to former years, although slightly in advance of last year. In a few cases the yield will be good, but in the majority the crop does not promise well. Owing to the wet, cold weather the crop during the latter part of December was at a standstill. Hay will be very good; all that is required is seasonable weather. All stock look well, and in some instances the farmers are adding to their stock on account of abundance of feed.

**CRESSY.**—Hay-cutting has been commenced. In some early fields the crops generally are light, but one hears of some good crops up to 3 tons. Caterpillars have made their appearance, and will no doubt do a lot of damage. Wheat crops have filled up wonderfully, as a result of the late November rains, and if rust keeps off there will be some fair crops. Peas have been neglected in this district for many years, but farmers are now turning their attention to them, and some good crops are to be seen. The price is likely to be good. Feed is plentiful, and stock look well. The show committee is at work again for the coming show in April, which no doubt will be a good one.

**ELIZABETH TOWN.**—Wheat, oats, and peas are not promising, but potatoes and feed are looking very well.

**EXTON.**—Area: The area under crop this year is about up to the average, though owing to such a wet season there are many very late crops. Prospects: The prospects for the present season are somewhat below the average,



though it is rather early to tell how the late crops—principally oats and barley and some late peas—will yield. At present the early crops on the high land are good, but very patchy in any fields that hold moisture. The late crops look very well, and should yield heavily. Hay: The hay harvest is now in full swing, and the crops, except on a few well-drained and high fields are light. The area is under the average, owing to low prices and to the late autumn rains being followed by a very wet winter. Wheat: The area under wheat is slightly above the average. The crops are not so good as usual; some on the high land are very good, but the majority are somewhat thin, and contain patches which have perished altogether with the wet. Rust is showing slightly on the flag, but unless suitable weather for its growth sets in it will not do any harm. There is very little smut showing. The wheat is headed very well, and a good sample of grain should be threshed. Peas: The area under peas is above the average, and in most cases the crops are very good and have podded very well. Owing to some of the crops having become diseased the average yield will not be as large as expected. Oats: Algerians have mostly been cut for hay. White oats: The area is much larger than usual, owing to the late season. The yield should be above the average, though it is rather early to prophesy. Still, the late crops look very well now, and should yield heavily. Barley: Owing to the difficulty of getting the land properly worked the area is not as large as usual. The crops look very well, but like "white oats," it is rather early to give a definite forecast of the yield. Caterpillars: These have put in an appearance, and while not proving so destructive as in other districts, have in some cases reduced the yield of Algerian oats considerably.

**FORTH.**—The season continues cool and showery; scarcely any warm weather has been experienced yet. The showers keep the grass, which is abundant everywhere, quite green. There will be a large increase of cream from this district this year; most of it will go to Burnie. Oat crops are looking well, and should they get some warm weather to mature them, some record yields may be expected. There are also some nice paddocks of wheat to be seen along the road, and with seasonable weather they should turn out well. Hay-cutting is now in full swing. It is thought the area will be small this year; many farmers prefer taking their chance with oats rather than leaving it for hay. All root crops look well. Not many potatoes have been dug in this district yet. The tuber is growing very fast at present, and as the district is free from disease farmers prefer to wait till after the new year.

**IRISH TOWN.**—The area under potatoes in this district is very small compared with former years, and those that are growing are not altogether free from blight. Oats, peas, wheat, and other crops are much more in evidence than in previous years, and are looking quite up to the average. A few patches of mangels look well. Turnips in large quantities are being planted, and the damp season should suit them admirably. Maize is not growing too well owing to the season being cold, but a few small crops of linseed and tick beans look "promising." One farmer has a mixed crop of oats and tares that should produce a heavy crop. A large extent of new land has been scrubbed this season, and the dairying industry is rapidly coming to the front. Dairymen are now paying far more attention to the quality of their cows. Hitherto they have been severely handicapped owing to the difficulty of obtaining a good class of cow, and the impossibility of importing any under the present conditions of quarantine. Should the local agitation that Perkins Island be made a quarantine ground be successful, there is no doubt a great stimulus will be given to the dairying industry all along the North-West Coast. There is no more suitable site to be found anywhere for quarantine purposes than the island in question, and there is certainly no more suitable country for dairying than Tasmania, where soil and climate are admirably adapted for the purpose.

**KINDRED.**—Very little wheat grown in the district. There are only a few crops, and these, with the exception of one or two, are rather light, and not likely to yield more than 15 to 20 bushels per acre. The oat crops range from very light to good, and, taking them all round, the yield will not be as heavy as it was last year. The few peas grown in the district look well, and with good weather from now on should yield well. The early crops of potatoes, which are now being dug, are turning out fairly well. The later kinds are looking very healthy, but they are not as forward as at the corresponding period of previous years. With a good season during January there will be a larger yield than was the case last season.

**LILYDALE.**—The grain crops in this district are generally good, and in some instances considerably above the average. Oats as usual constitute the chief cereal, though odd fields of wheat and peas are to be met with, the latter of very good quality. Unfortunately for the farmers the noxious army caterpillar has made its appearance in the district and wrought much havoc. Potatoes are fairly forward, but the area devoted to this crop is not large, though conditions are most suitable, and the district is free from Irish blight. All the orchards look well, but the outlook, so far as fruit is concerned, is not a promising one. Many of the trees are quite barren this year, and others have but a poor show of fruit. This is not due to late frosts, as might be supposed, but appears to be one of Nature's balances, by means of which the tree is strengthened and invigorated for the succeeding year.

**MACQUARIE PLAINS.**—Hay and grain crops, which are being harvested, are turning out well, and are quite up to the average. Apples are rather patchy, but will average a medium crop. Owing to the cold winds hops received a check about Christmas time, and will not quite come up to early expectations. Still, there should be a fair average crop.

**MOOREVILLE ROAD.**—Owing to abundance of rain prospects are excellent. The potato crops promise to yield well. Up to 5 tons per acre of the Bismarck variety are being dug, which is considered good for this time of the year, the average being about 4 tons. This district has gone in more largely for wheat and peas than in former years—both crops are looking very promising, especially peas, which according to present prospects should yield from 35 to 40 bushels per acre. As regards oats and hay, there is about the same amount of land under these crops as in former years, and if the caterpillars keep away the yield should be very heavy—as high as 70 bushels of oats and 2½ to 3 tons of hay. Hay-cutting has begun in this district, but the weather lately has been anything but good for harvest work. All that is required now is some fine, warm weather to ripen the grain. All kinds of stock are in excellent condition, as there is abundance of feed. Dairying has largely taken the place of potato-growing during the last two years. The great drawback is that good dairy cows are hard to procure. The caterpillars have made their appearance again, but are not so troublesome as they were last year.

**NEW GROUND AND THIRLSTANE.**—The outlook for the season as regards the crops in these districts is very promising. Several crops of whiteskin varieties of potato are being dug for the early market, and are yielding 3 to 6 tons an acre. Hay-cutting is almost finished, and the average yield should be 2½ to 3 tons an acre. Caterpillars have not appeared in sufficient numbers to affect yields of grain. Feed is very abundant.

**NOOK.**—Owing to the unfavorable weather experienced to date, the crops present a very poor appearance. Hay crops (that is, Algerians) are very light, and oat crops in general are very poor. There has been no warm weather to promote growth, and so much wet in the early part of season caused farmers to be late in sowing. The grain seemed to come away well for a while, and then practically remained at a standstill. A little warm weather now would help them along. The potato crops are in much the same state, and

do not look very well at present; a couple of frosts lately did not improve matters. There are odd lots of peas looking well, but the returns for this season's crops promise to be very poor.

**RIANA.**—The crops generally are looking very well. Mr. T. Conroy, Jun., has a remarkably fine crop of potatoes. The oat crops have come on splendidly within the last few days, and grass is abundant everywhere. The cream carts travel to the butter factories loaded to their utmost capacity, and so far the outlook for the farmer in this district is bright and pleasing.

**RIDGLEY.**—The potato crop is larger this year than last, and looks very well, early varieties being numerous. Digging has been commenced very early, owing no doubt to the fear of blight, for although no trouble in this respect has been experienced in this district, rumours of "Irish" elsewhere are frequently heard. The spring has been a very wet one, consequently crops are weedy, sorrel being very prevalent in both oats and potatoes. A heavy frost was experienced in December, one fine potato crop of 50 acres being badly cut. The oat crop is extensive, and some good crops are in evidence; but harvesting does not commence until January. Grass is plentiful and the dairying industry is in full swing, large loads of cream being sent every day to the factory. Agriculturally the outlook has never been better.

**RINGAROOMA.**—Owing to the moist season vegetation of all descriptions is growing luxuriantly. The oat crop especially promises to be a record one. Over 60 inches of rain have fallen to date (27th December), and farmers with hay crops are longing for settled weather. Caterpillars have not done much damage yet, but farmers are afraid to increase the number of stock until the extent of their depredations is known.

**SCOTSDALE.**—Oats: Algerians good to very heavy. Where winter feeding was not practised most crops are "lodged." White very heavy; about usual acreage. Wheat good to heavy; largely increased acreage. Peas very heavy. Some appear good enough for 60 bushels per acre. Early crops of potatoes good; late crops will be heavy if weather continues favourable; smaller acreage this season. Feed is excellent, and stock are in good condition. Butter factory making 3 to 4 tons weekly.

**STOBBLEY.**—In this district the potato crops are looking well, but a few of the early oat crops are somewhat short, and a good deal of sorrel is showing through them. There are a few good wheat and some good pea crops. Taking one crop with another the season is satisfactory.

**TABLE CAPE.**—Potatoes: Though not yet up to the normal amount, a larger area has been planted out than was the case last year. Prospects, so far, good. A few small plots of early sorts have been marketed with satisfactory results. Oats: Algerians excellent; white oats showing some rust and smut. Peas: First-class. Wheat: A considerable amount of wheat has been sown during the last two seasons. While some crops look well, others are showing signs of having had too much wet. Smith's Nonpareil, which is fairly rust-resisting, is a favourite in this district. Pasture: Seldom so luxuriant, but caterpillars are proving destructive. The season has been unusually wet and cold.

**WATTLE GROVE.**—The crops, taken as a whole, are not as large as those of last year; but fruit is growing well, and the yield may be greater than usual.

**WESLEY VALE.**—Farmers' prospects in this district are very promising. There is a large area under cereals, which are looking remarkably well—both early and late. Hay-cutting is in full swing, and the crops are really good. Potato crops are very good, and so far are perfectly free from disease. Feed is also plentiful, the season being most conducive to a good growth, especially after such a mild winter. The only drawback in this direction is the high price of store stock, which leaves little margin for profit.

## BOARDS OF AGRICULTURE.

THE following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	G. Pratt	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Channel	W. Baldwin	Woodbridge
Cressy	James Anderson	Cressy
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
Elliott	L. H. Shepherd	Elliott
Fingal	F. M. Lattin	Fingal
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Glengarry	W. Wheldon	Glengarry
Irish Town	E. L. Smith	Irish Town
Kimberley	H. Britton	Kimberley
Kettering	F. Hawkes	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
Leslie	R. C. Reid	Fern Tree
Lilydale	A. J. Buttsworth	Lilydale
Lymington	T. Burnaby	Lymington
Margate	C. E. Meredith	Margate
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marawah	E. Bonhote	Marawah
Montagu	R. Eunis	Montagu
Meander	H. Evans	Meander
Mt. Seymour	W. Wilson	Mt. Seymour
Mooreville-road	J. M. Douglas	Burnie
New Ground	A. H. Douglas	Moriarty
New Norfolk	B. R. Reynolds	New Norfolk
North Motton	O. Waters	North Motton
Nook	M. McInnes	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgeley	W. Morris	Ridgeley
Scottsdale	F. F. Tucker	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
Smithton	G. H. Boatwright	Smithton
South Preston	W. E. Gillam	South Preston
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carins	Myrtle Bank
Sprent	A. Lee	Sprent
Staverton	T. Wootton	Staverton
Stoodley	J. Leo	Stoodley
South Springfield	M. J. Cox	South Springfield
Table Cape	H. J. Smith	Wynyard
Ulverstone	H. A. Nichols	Ulverstone
Wattle Grove	K. Lord	Wattle Grove (Lower)
Wilmot	D. E. Forbes	Wilmot
Yolla	D. T. Jones	Yolla

**Avoca, December 8.**

**PRESENT.**—Messrs. J. Conway (Chairman), H. Malkin (Treasurer), A. T. Rubenach, L. Stanley, C. Davis, J. Macarthy, J. A. Smith, and G. Pratt (Hon. Secretary).

**BY-LAWS.**—As this was the first meeting of the Branch since its inception, the consideration of by-laws was gone into. Nine were framed, and the Secretary was desired to enter the same in the books for future reference.

**SEED POTATOES.**—Mr. J. Conway moved that the Secretary write requesting that the best method of cutting potatoes for seed be treated of in some forthcoming number of the "Gazette."

**POULTRY EXPERT.**—On the motion of Mr. Macarthy, the Hon. Secretary was directed to write to the Director and enquire when Mr. Terry's services would be available for a lecture on poultry and kindred subjects.

**Barrington, November 19 and December 10.***November 19.*

**PRESENT.**—Messrs. A. Rolls (Chairman), J. A. Moore, A. Morey, H. Rockliff, A. Cox, O. Packett, and M. McInnis (Hon Secretary Nook Board).

**ENTIRE HORSES.**—Discussion took place on question raised by Mr. A. Morey at a previous meeting, as to whether entire horses should bear a Government veterinary certificate to be eligible for show prizes. After a lengthy discussion it was decided to ask the Agricultural Department to recommend to the Government that in order to become eligible for show prizes all horses should be passed by a Government veterinary surgeon.

**SPARROWS.**—The Hon. Secretary moved, "That active steps be taken to check sparrow and starling pests." The motion was discussed at some length, and members generally were of opinion that, on account of the good done by the birds destroying insects, grubs, &c., such action would not prove beneficial.

**POTATO TAX.**—On the motion of the Hon. Secretary, it was resolved that the Government be asked, through Agricultural Department, to abolish the potato area tax, it being considered that port inspection was sufficient for the protection of the industry. Also, on the motion of H. Rockliff, it was decided that port inspection charge be reduced to ½d. per cwt. on weighbridge weight.

*December 10.*

**PRESENT.**—Messrs. D. Russell (Chairman), T. Williams, J. Hagearty, J. Russell, J. McNally, J. A. Moore, A. Morey, T. Newman, O. Packett, the Hon. Secretary, and three visitors.

**AGRICULTURAL FARM.**—Moved by Mr. A. Morey, "That the Government be asked to establish a State agricultural farm at some centre on the North-West Coast." After a full discussion, the motion was carried unanimously.

**POTATO SHIPMENT.**—On the motion of Mr. A. Morey, it was unanimously decided that the Hon. Secretary write to the Warden, and request that more care be taken in handling and stowing potatoes; also to see if it was not possible to get Friday's delivery inspected and shipped on same day up to the 1st of March, as by that time they would be more set.

**CONFERENCE.**—The Hon. Secretary was appointed to represent this Board at the forthcoming annual conference.

**SPRAYING POTATOES.**—A discussion took place on this subject, and the following motion was moved by the Chairman, and carried: "That owing to the prevalence of blight of such a serious nature in other States, this Board strongly recommends spraying to cope with the evil."

**Carnarvon, September 14 and October 19.***September 14.*

**PRESENT.**—Messrs. Tanner (Chairman), G. Wellard, W. Mawle, J. T. Green, W. D. O'Niell, J. McArthur, J. T. Palmer, E. A. Target, D. B. Blackwood (Hon. Secretary), and one visitor.

**CIRCULAR FROM DIRECTOR.**—A discussion took place on the circular received from the Director of Agriculture. Questions 1, 2, and 3 were postponed to a future date. As to Question 4, eel-worm or gall-worm is not known in this district. (5) Mr. Locke, being the only practical orchardist present, gave his views, and stated that some years ago he had a lot of bitter-pit in his orchard, but it was different now. He considered that want of natural food was the cause of bitter-pit in fruit, and stated that he had found a heavy dressing of potash an excellent preventative. The practice here in pruning is not to allow lateral growth, and he considered a young orchard should outgrow bitter-pit in about 12 years. To the remaining questions the following answers were returned:—(6) In using soda, it does not vary in quality. Bordeaux mixture is not to be relied on, on account of quality of lime. (7) Red oil has been used, but has not been found to be of standard quality. Washing-soda and resin recommended. (8) No one spraying for Irish blight; no signs of it having occurred on the Peninsula.

*October 19.*

**PRESENT.**—Messrs. W. Cotton, G. Bellette, H. Frerke, W. R. McGuinness, J. McArthur, G. Eldridge, W. D. O'Niell, and D. B. Blackwood (Hon. Secretary).

**CHAIRMAN.**—On the motion of Mr. Eldridge, Mr. Bellette was voted to the chair.

**DISCUSSION.**—A great deal of discussion took place on Questions 1, 2, and 3 in the circular from the Director, but nothing definite was carried.

**MANURES.**—It was resolved, on the motion of Mr. Eldridge, that the Hon. Secretary write to Mr. Colbourn, asking him for some copies of the pamphlet on "Manures."

**MEETINGS.**—It was resolved that all future meetings be held on Saturday night, instead of Wednesday night, as at present.

**STEAMER SERVICE.**—The Hon. Secretary was instructed to confer with the Chairman on the latter's return, and call a meeting for Saturday week in regard to steamer service.

**Clarence, December 3.**

**PRESENT.**—Hon. J. Murdoch, M.L.C. (Chairman), Messrs. T. Dawson, J. O'May, S. Salmon, P. W. Goodwin, E. W. Goodwin, C. O. Chipman, W. Westbrook, A. O. Green, W. Young, R. Young, H. Jolliffe, E. P. Davies, Oscar Chipman, S. N. Wellard, C. F. Percy, and R. A. Black (Secretary).

**CIRCULAR FROM DIRECTOR.**—The Board devoted the afternoon to the formulation of replies to a number of questions which had been submitted by the Director of Agriculture, Mr. A. H. Benson.

Regarding the question forwarded by the Director as to the desirableness of each Board of Agriculture possessing a Babcock tester, the Chairman thought that the Board should reply to the effect that, as so little dairying was carried on in the district, the suggestion would be of no practical benefit. This suggestion was agreed to.

**DAIRY SIRE.**—Mr. A. O. Green considered that preventing the use of inferior animals as dairy sires was of great importance to the dairying industry of the State. He had seen Tasmanian dairymen breeding from a bull that one could throw over a hedge. He had overheard a farmer say, "I could never have believed that British cattle could deteriorate to this." Of

course, a good many of the dairymen here killed the calves; they simply kept the cows as milk-producers. The Chairman considered that, taking it all round, there was an improvement in the Tasmanian dairy cattle. Some of the breeders had told him that they had seen as good dairy stock at the Launceston show as anywhere in the Commonwealth. Some of the cattle shown at Launceston were quite as good as those exhibited at the Melbourne show. All the Board could do would be to point out to the dairymen the advantages of keeping good stock—the dairymen would have to be educated. It was like keeping the streets clean—if everyone swept in front of his own door the streets would be clean. Of course, personally, he was altogether in favour of any movement to improve the dairy stock in this State. Mr. S. N. Wellard remarked that he had seen better dairy cattle at Launceston show than at either Melbourne or Sydney. He held that in the Northern parts of Tasmania one could see as good a breed of dairy cattle as in any part of the Commonwealth. All the Board could do would be to try to educate breeders as to the advantages accruing from the keeping of good sires. Mr. W. Westbrook thought that a system of registering good bulls should be adopted. The Secretary explained that in Victoria all the best stallions were registered by the Agricultural Department, and a similar system might be adopted in Tasmania with regard to the dairy sires. Mr. E. P. Davies said that if dairymen used good sires they would find it profitable to bring up the calves instead of killing them. The Chairman sympathised with dairymen in a small way, who had to kill the calves. Such men kept the cows for milking purposes, but owing to the expenditure involved, could not afford to bring up the calves. With these men the question resolved itself into one of profit and loss. He suggested that breeders who kept good bulls might advertise them in the "Agricultural Gazette." He always kept good sires and would be glad to advertise them in that journal. Mr. A. O. Green moved, "That this Board views with the strongest approbation any measures that may be taken to improve the dairying stock in Tasmania, although this is not sufficiently a dairying district to take an active part in the movement." Mr. P. W. Goodwin seconded the motion, and it was agreed to unanimously.

**PLEURO-PNEUMONIA.**—Mr. S. Salmon said that while the subject of dairying cattle was under discussion, he wished to point out that pleuro-pneumonia was very prevalent on the mainland at present. Precautions should be taken to prevent its importation into Tasmania. He had heard that there was a desire in some quarters to reduce the period of quarantine. The Chairman said that the Government could not reduce the quarantine period without the sanction of Parliament. If nothing were done within the next fortnight no steps could be taken before the next session of Parliament to reduce the period, which at present was 90 days.

**HOW TO CHECK EEL-WORM.**—The Secretary explained that eel-worm was very bad among the potatoes on the North-West Coast, and the desire of the Director of Agriculture was to ascertain if any member of the Board had grown a crop which had checked this worm. Mr. E. W. Goodwin said that he put in onions some time ago, and they missed through being attacked by eel-worm. He ploughed them up, fallowed the land, and then put in mangels. Although the eel-worm was still in the soil, it was not so bad. The Chairman suggested that a reply should be sent to the Director of Agriculture to the effect that no member of the Board had sufficient experience of this disease to enable him to offer any advice. The Board would be glad to receive any advice on the subject from the Department.

**BITTER-PIT.**—Mr. P. W. Goodwin said he had taken Mr. Osborne's advice by leaving the outside laterals on the Scarlets and New Yorks, with very good results. Mr. Oscar Chipman said that the nature of the soil had a good deal to do with the appearance of bitter-pit. When the soil was too rich it produced an overflow of sap in the trees, and caused bitter-pit. By leaving

the laterals on, the flow of sap was slower. He especially found this to be so with young trees. A few years ago he manured the Ribston trees with fish manure, and found it too stimulating. As a consequence, trees 60 years old bore bushels of apples that were affected with bitter-pit. The use of this kind of manure was dropped, and special orchard manure substituted, and there was a marked decrease in the disease. Questioned by Mr. Dawson as to what length he would leave the laterals, and how he would act at the next year's pruning, Mr. Chipman replied that he would leave the laterals for a foot or so, as long as they did not interfere with the working of the ground. Mr. Green said there was little doubt that bitter-pit came on trees with a too vigorous circulation of sap. Mr. Oscar Chipman instanced a case where a plantation was partly on volcanic soil, light loam, and heavy vegetable soil. The trees on the richer soil were badly affected, and those on the lighter land not affected at all. The Chairman, on the other hand, said he thought it better to keep down the lateral growths. His observations, he said, had shown him that bitter-pit was more prevalent on young trees growing very vigorously, and showing an abundance of foliage. When they settled down to full bearing, the disease had a tendency to disappear. Scarlet Nonpareils never developed bitter-pit in his plantations. His Sturmers and New Yorks got affected, but not very badly. He felt sure that, with pipe-draining, the bitter-pit would completely disappear. Mr. P. W. Goodwin said they could leave the laterals and have branch spurs as well. Mr. Green said his experience was that it was a difficult thing to get Jonathans to send out fruit-buds, but if in the second and third year he left a larger number of laterals, and left them to grow to 18 inches or so, the terminal buds would be fruit-buds, and from those buds they would "fruit home" towards the branches of the trees. Then the laterals could be shortened in the summer, and they would not bear again. Mr. Oscar Chipman and Mr. P. W. Goodwin supported the use of laterals, and interestingly detailed their experiences, especially with pear trees.

**BORDEAUX MIXTURE.**—In connection with this subject, the Secretary (Mr. R. A. Black) read a short paper prepared by Mr. C. O. Chipman, who said:—"With regard to this question it could be answered by the one word—yes or no—but I do not think that is the intention of the Director, so that the writer will endeavour to give some of his experience with this mixture. Before commencing I would like to draw your attention to the very able and practical articles on many of these subjects that have been written by our experts recently, leaving very little to be said without going over the same ground again—notably a paper on bitter-pit by Mr. Osborne before the conference of fruitgrowers last month. Bordeaux mixture (bluestone and lime) was used on peaches last year for curl-leaf, with varying results. The first quantity mixed, according to the formula recommended by Mr. Lea, was used with good results, the trees sprayed with this being almost free from curl. The next caskful was mixed in exactly the same way in every particular, both as to quantity and strength, and material, but when ready for use showed of a somewhat different colour. On being tested with a knife-blade, however, it seemed to be all right, and was sprayed on the same as the former, but with very different results, the trees coming out a mass of curl; in fact, quite as bad as two or three that were not sprayed at all. This year soda was used instead of lime, with much better results. The spray was mixed at only half the strength recommended by Mr. Lea, and I am pleased to say that there is scarcely a curl-leaf to be found, even on those trees that were so badly affected the last year. Some few of the trees were treated with full strength mixture, but I do not see any difference between them and the others, even in those that were so bad the year before. One tree was not sprayed at all, and it shows no curl; but it is of a kind that is not subject to this disease, and seems to be almost proof against aphids. The soda was found



to be much better to use than the lime; it is not so rough on the hands, and is much better for the pump and connections, it being free from grit. Test paper generously supplied by the Department was used for the first time with much better results, as by comparing the two tests in the same lot of mixture the knife-blade or bright nail was found to be entirely useless if there was an excess of lime or soda; so that I would strongly urge anyone using either of these mixtures to secure the proper test paper instead of relying on the old and unreliable method. Note.—Both these mixtures were used on pears for black spot, with about equal results as far as can be seen at the present time. The soda was used at full and half strength." The Secretary gave some demonstrations of his own method of testing the spraying material as to the sufficiency of lime or soda, and a discussion ensued in which it was agreed that soda was preferable to lime, as the quality of the lime was always more or less an uncertain quantity, whilst there was no variation in the soda, and which did not require so much attention to the nozzle, screwing and unscrewing. There was also less waste. Mr. Chipman was thanked for his paper, and Mr. Black for his demonstrations, and it was resolved to recommend the use of soda in preference to lime. Mr. Green then moved, "That this Board considers that the knife-blade test should not be used, and that Burgundy mixture should take the place of Bordeaux mixture, because it is easier to mix and easier to apply, and is also free from grit." Mr. Chipman seconded the motion, and it was agreed to. It was decided to forward the resolution and Mr. Chipman's paper to the Director of Agriculture in reply to his question.

**WOOLLY APHIS.**—The Chairman said that he had tried Cooper's dip, and other so-called remedies, but although they seemed to act for a time, the blight had always returned. This was one of the worst pests they had to cope with. Mr. W. Young said that he had used crude petroleum, which had killed the blight for a time, but it always came back again. Mr. Dawson said he killed the woolly aphis every season with oil and sulphur, put on with a brush. Mr. Green advocated attacking the pest in spring, when the aphis came up on to the trees from the roots. Sometimes they hibernated in the bark over winter, as well as in the ground. Mr. T. W. Goodwin referred to the peach aphis, and said he had seen in "Work and Production," in the "Mercury," some time ago, that a good plan was to wrap round the stem of the tree a bandage soaked in red oil to check the aphis rising from the roots, and then substitute a bandage of Stockholm tar, which captures them. He tried the tar, and it was very effective. It caught myriads of the aphis, and since then he had not had occasion to spray for the aphis on peach trees. A shilling's worth of Stockholm tar did it. Stockholm tar did not dry so rapidly as ordinary tar, but a fresh lot required to be put on the bandages every week or two with a brush. He could do 1200 trees in a day. Mr. Oscar Chipman said he and his brother sprayed with red oil early in the spring, just as the buds were about to burst, for woolly aphis, and it was very effective for the season. Others spoke to the same effect. It was resolved to recommend the use of red oil for the woolly aphis.

**ANNUAL MEETING.**—The following members were appointed as a committee to arrange a social for next annual meeting:—Messrs. F. Dawson, Jas. O'May, A. O. Green, S. Salmon, S. N. Wellard, and the Chairman and Secretary *ex officio*.

#### Exton, December 16.

**PRESENT.**—Messrs. A. Badcock (Chairman), A. Cooper, Len. Badcock, J. Brumby, A. Ruffin, and J. H. Room (Hon. Secretary).

**NEW MEMBER.**—Mr. A. Ruffin.

**STATE AGRICULTURAL FARM AND SCHOOL.**—After an interesting discussion, it was moved by Mr. Brumby, "That this Club is of opinion that the scheme

as outlined by the Director should be followed, it being more suitable for this State than an agricultural college." The opinion of this Club as to locality is that, in order to carry out a suitable method of mixed farming, including the growing of potatoes, peas, &c., that cannot be grown in all districts, some locality between Latrobe and Westbury should be chosen. This would also be a central position for the most thickly populated agricultural districts.

**CUTTING POTATOES FOR SEED.**—Considerable discussion took place on this subject, the opinion being that a medium-sized potato, split from top to bottom so as to divide the crown, is most suitable for this district if sown during October. In ordinary seasons potatoes sown earlier or later than October should not be cut. Most of the members stated that this year it is very noticeable, where large potatoes were used for seed and cut into several sets, that a lot missed, whilst in the same paddocks medium seed split once came very well.

**FODDERS.**—An interesting discussion took place on the growing of fodders for feeding-off and making into hay for dairy stock.

### Forth, December 16.

**PRESENT.**—Messrs. M. Barker (Chairman), H. Hayes, J. G. Pike, C. H. Wellard, T. Bowden, W. Cash, W. Kennedy, T. C. Wellard, A. Cullen, D. L. Whitchurch, A. Filluel, and H. A. Vertigan (Hon. Secretary).

**BABCOCK TESTER.**—The Chairman reported the purchase of a Babcock tester, which he stated had been placed in the State school, under the care of Mr. Whitchurch. The action of the Chairman was endorsed by members.

**SCHOOL GARDEN.**—The Chairman stated that he, with about a dozen other members, visited the agricultural plots at the State school on the 3rd instant. He spoke in eulogistic terms of the way in which the teacher (Mr. Whitchurch) had carried out the work, the plots being "quite a picture" at the present time.

**POTATO SHIPMENT.**—Mr. Hayes moved that a letter be sent to the various municipal councils on the North-West Coast asking them to use their best endeavours to urge the Government to take immediate steps to raise the embargo placed upon Tasmanian potatoes by the authorities in Western Australia. Mr. Hayes pointed out the injustice which farmers on the Coast were suffering through what he termed prohibition. The motion was carried.

**LIFE OF PLANTS.**—Mr. Whitchurch gave an address on the life of plants, which provided members with a very pleasant and instructive half-hour.

### Kindred, December 12.

**SPRAYING POTATOES.**—A long discussion took place on this subject. Members were of opinion that it was not necessary to make spraying compulsory, because if it proved effective as a check for Irish blight farmers would spray their crops for their own benefit.

**SHEEP-FARMING.**—This subject was discussed, and all present were of opinion that it would pay every farmer to keep a few sheep, as they are very useful to clean up weeds on the farm; also, they enrich the land very much with their droppings, in addition to being profitable for their meat and wool.

**DAIRYING.**—In regard to dairying, members were of opinion that it was profitable, but considered that there was great need for improvement in the class of cows kept.

**Lilydale, December 9.**

**PRESENT.**—Messrs. F. Procter (Chairman), L. Bardenhagen, G. Sulzberger, W. Sulzberger, J. J. Miller, — Thompson, P. Somerville, L. Somerville, and A. J. Buttsworth (Hon. Secretary).

**THE BOARD.**—The chief business was to reorganise the Board, and establish it on a sound footing. The old rules were adopted, but the subscription fee was fixed at 1s. per year, instead of 2s. as before.

**FRUIT EXPERT.**—The Secretary was instructed to write to headquarters, and see if Mr. Osborne, the Government Fruit Expert, would be able to visit Lilydale next January to give a demonstration in summer pruning; also to make enquiries in regard to the planting of ornamental trees.

**Mooreville Road, December 12.**

**PRESENT.**—Messrs. W. Spinks (Chairman), T. Redman, A. J. Redman, W. White, A. J. Spinks, J. Connolly, G. E. Russell, Jos. Freer, Richd. Hilder, T. Atkinson, and J. M. Douglas (Hon. Secretary).

**CORRESPONDENCE.**—Correspondence was read from Agricultural Department; also circular dealing with bush fires and fire brigades, which it was decided should be discussed at next meeting.

**HEMLOCK.**—A paper from the Department dealing with this dangerous and poisonous weed was read and keenly discussed. Hemlock was recognised as one of the worst noxious weeds, and as it is sometimes cultivated in flower gardens, it was decided to warn people of its dangerous properties, and get them to destroy it.

**CALIFORNIAN THISTLE AND OTHER WEEDS.**—The Hon. Secretary was instructed to write to the Department, and ask whether there was a law in force to make people cut Californian thistles, as there were a few patches of them in the district; also to get particulars as to the means of keeping them in check. [The Act requires that the Californian thistle be kept from blooming.—Ed.] Other weeds, such as charlock, wild turnip, raddish, onion twitch, dock, and blackberry were referred to. The general opinion was that something should be done to keep them in check.

**PAPERS.**—It was decided to ask the various experts to give papers on the subjects which they were closely identified with.

**NEW MEMBER.**—On the motion of Mr. J. Connolly, Mr. T. Coghlan was elected a member of the Board.

**FRUIT-GROWING.**—Mr. R. Hilder asked permission to give a lecture on fruit-growing at next meeting.

**Ridgeley.**

**PRESENT.**—Messrs. R. Moore (Chairman), W. Burley, G. Jubb, H. Morris, M. Bramich, W. Docking, and W. Morris (Hon. Secretary).

**MILKING COMPETITION.**—The chief business of the evening was to make arrangements in connection with the milking competition—to fix dates, appoint stewards, &c. The following gave in their names as competitors:—W. Docking, G. Revell, J. Hancox, H. Rowbotham, W. Townsend, W. Burley, V.D.L. Company, and J. F. Crawford. Mr. W. Morris was appointed as steward to Messrs. J. Hancox, H. Rowbotham, and W. Docking; Mr. H. Morris to Messrs. G. Revell and G. Townsend; Mr. J. F. Crawford to Mr. W. Burley and the V.D.L. Company; and Mr. Burley to Mr. J. F. Crawford. On the proposal of Mr. R. Moore it was decided that the cows be visited on Tuesday night (December 13), that samples and weight be taken on Wednesday morning and evening (December 14), and that the testing be done the same night at the Ridgeley public hall. The offer of Mr. T. Anson (manager of the Emu Bay Butter Factory) and Mr. R. S. Sanderson (chairman of

directors) to do the testing was gratefully accepted. The following are the results for one day's milking:—

Owner.	Cow and Breed.	Milk.	Test.	But. Fat.	In Milk. Weeks.
W. Townsend, "Eva," Durham cross ... ..	M	28½	3 0		
	E	26	3·2	1·687	6
V.D.L. Company, "Nancy," pure Durham	M	21	3 6		
	E	22	4·0	1·636	10
W. Docking, "Mag," Jersey ... ..	M	19½	4·0		
	E	18	4·2	1·536	9
H. Rowbotham, "Pet," Devon ... ..	M	20	3 4		
	E	17	3·9	1·343	7
J. F. Crawford, "Daisy," breed not stated	M	17	3 8		
	E	17	4·0	1·326	16
W. Burley, "Chloe," Jersey cross ... ..	M	17	3·2		
	E	18	3 8	1·228	9
G. Revell, "Topsy," Durham cross ... ..	M	15½	4·3		
	E	13½	4·2	1·228	6
J. Hancox, "Strawberry," Durham cross	M	19	2 7		
	E	18½	3 0	1·068	12

The allowances for time in milk have not yet been calculated.

### Ringarooma, December 15.

**PRESENT.**—Messrs. W. H. Phillips (Chairman), J. Cox, W. Freeman, R. Thompson, M. Boulthée, A. H. Edwards, and one visitor.

**SCOTCH COMMISSION.**—Reference was made to the Scottish delegates, and regret expressed that they did not visit Ringarooma; also, that no message was received notifying members of the altered arrangements.

**STATE FARM.**—The scheme in connection with the State farm project was discussed, and further consideration postponed until next meeting.

**SEED POTATOES.**—In the discussion upon seed potatoes members favoured round sets of fair size as less likely to "miss." If cut, potatoes of fair size preferred, cut into two pieces.

**NEW MEMBERS.**—Messrs. W. J. White and L. Collins were elected members of the Board.

**SECRETARIAL.**—Mr. Edwards having expressed a desire to be relieved of the duties of Secretary, it was unanimously resolved that Mr. C. Krushka be requested to accept the position. A hearty vote of thanks was accorded the late Secretary, who suitably responded.

### Scottsdale.

**ATTENDANCE.**—Mr. J. B. Hayes occupied the chair, and there was a fair attendance.

**RUGGING AND FEEDING CATTLE.**—Mr. R. Camm gave a long and lucid lecture on the rugging and feeding of cattle. The speaker commenced by showing how warmth tended to increase the size and stamina of all beings and beasts, from the Australian natives who develop finer proportions in the tropical climes, and he also showed how the sheep from the warmer States were superior in size to ours owing to their not getting a check through the cold. He also treated practically on feeding—going on to the feeding of horses, when he said not one man in twenty really knew how to feed a horse. He emphasised the necessity of cleanliness in feeding, also regularity, giving many practical instances. Messrs. R. Jones, J. Stewart, and the Secretary also took part in what turned out to be an interesting evening.

**BLACK SPOT.**—Mr. P. H. Tucker announced that he had discovered a parasite of the black spot, and an attempt is being made to secure the services of the Agricultural Department to investigate it. The Chairman undertook to collect some details of potato-spraying for the next meeting, and to endeavour to procure the services of Mr. Hean to give a demonstration shortly.

### South Springfield, December 19.

**PRESENT.**—Messrs. W. W. Tankard (Chairman), W. Lethborg, J. Wheatley, L. Lethborg, L. Berwick, E. Reynolds, B. F. Reynolds, O. Wilson, G. H. Burleigh, A. Weir, and W. J. Cox (Hon. Secretary).

**RULES.**—The rules as read were adopted.

**LECTURES.**—The following resolution, moved by Mr. O. Wilson, was carried:—"That the Secretary write and request Mr. J. B. Hayes (Scottsdale) to deliver a lecture at the next meeting." On the motion of the Secretary it was also resolved that Mr. Wilson at the same meeting give an address on the judging of dairy stock.

### Staverton, December 1.

**PRESENT.**—Messrs. A. Cox, J. F. Cox, M. T. Cheek, D. Davies, C. Gillespie, D. McNab, D. Wyllie, and T. Wootton.

**CHAIRMAN.**—Mr. D. Davies was appointed chairman of the meeting.

**RULES.**—Mr. Cox handed in the rules of the Clarence Board and other useful matter. The rules and objects were informally discussed.

**ELECTION OF OFFICERS.**—The election of officers for the ensuing year was proceeded with, and resulted as follows:—Chairman, Mr. J. F. Cox; Vice-Chairman, Mr. D. Davies; Hon. Secretary, Mr. Thos. Wootton; and Treasurer, Mr. A. Cox.

**SUBSCRIPTION.**—The subscription was fixed at 1s., with right of making a further levy (not exceeding 1s.) should circumstances render it necessary.

**MEETINGS.**—On the motion of Mr. Cox it was decided that the meetings of the Board be held monthly during the winter, and on alternate months during the summer. The date to be Friday before the full moon, and five to form a quorum.

**BABCOCK TESTER.**—Mr. Cheek promised to place his Babcock milk-tester at the service of members, and to give instruction in the use of same.

**NEXT MEETING.**—It was decided that the next meeting be held on February 10.

### Stoodley, December 13.

**PRESENT.**—Messrs. J. Leo (Hon. Secretary), T. Tyler, J. Cooke, C. Plumley, W. Scanlan, Sen., W. Scanlan, Jun., J. Wright, M. Cooke, J. Collins, and G. Nolan.

**BUSINESS.**—Correspondence from the Director of Agriculture and Mr. Lea was read. An informal discussion took place on the trouble with peas—its cause and remedy, as explained by the Government Entomologist—and on the prospects of the market for the coming season. An invitation from the Railton Board to a conference for the purpose of discussing the home milking competition suggested by the Director was declined, as the date chosen coincided with the day chosen for the Stoodley picnic and social.

### Upper Flowerdale, November 3.

**PRESENT.**—Messrs. S. P. Rielly (Chairman), A. W. Stuart, L. Crisp, H. Crisp, H. Mezger, H. Bramich, T. Stuart, W. Scott, W. Crisp, H. Smith, V. Smith, E. J. Reeve, and J. A. Smith (Hon. Secretary).

**MEETING DAY.**—On the motion of Mr. V. Smith, it was resolved that the meetings of the club be held on the last Saturday of the month instead of

as at present. It was pointed out that this would bring the meetings a week ahead of the municipal council, and that any business could be done at once instead of waiting a month for the next meeting.

**DISTRICT COMMITTEE.**—The subject of appointing a sub-committee from the club was discussed. The need of some special system of watching the interests of the district in regard to roads, &c., was gone fully into, and it was suggested that a sub-committee would be the best way of doing this, as it could investigate any matters of importance, and report to the following meeting of the club. A resolution that a sub-committee of three be formed, with power to act in any urgent matter, was carried. The following were appointed:—Messrs. S. P. Rielly, A. W. Stuart, and V. Smith.

**FIRE-PREVENTION.**—It was resolved that the motion carried at the last meeting be brought under the notice of the Director. The motion was, "That in the event of a tree or other dangerous fire occurring on any property, any two neighbours who agree that the fire is dangerous to adjoining properties shall be entitled to enter upon said property and put out the fire without being liable to any action for trespass, and, in the event of having to cut down tree, to incur no liability for clearing up same, but to be liable for any destruction to crops."

**MANURE ACT AMENDMENT.**—Mr. S. P. Rielly moved, "That one member authorised by a Farmer's Club or Board of Agriculture be empowered to enter any vendor's store, and take samples of manures, and have same submitted to Government Analyst, and that the values of such manures be published in the daily papers of each district submitting same, or by other means made available to members in time to be of use when the manures are required for sowing; also the suitability of each manure to the various crops."—Carried. Mr. S. P. Rielly said that he had bought £20 worth of manures, but so far saw no improvement in his crops, and wished for more definite information. Mr. L. Crisp said that his experience was very much the same. He said that a lot of the manures sold were not worth sowing. Mr. H. Mezger sowed  $3\frac{1}{2}$  acres with superphosphates for oats, and the crop was very poor. It was considered that the information in the "Gazette" came too late, and was not definite enough; and it was suggested that the Director be asked if he could give information as to which are the best kinds of manures or mixtures of manures for the various crops in this district, and in this connection to state if Mr. Colbourn could possibly be sent here for two or three days to see the average soil of the district.

**THE DAIRYING ACT.**—Mr. V. Smith suggested that the Government inspectors take samples of any product (milk, cream, &c.) from the dairy of any person selling, either to factories or locally, and have a bacteriological test made of same; and if below a certain standard of purity, the dairyman or farmer to have some suitable and severe penalty enforced against him. Mr. Smith said that the clauses requiring watertight floors, &c., were good, but that the real root of the matter lay in the dirty conditions of milking and handling the products, many persons imagining that the separator took out all impurities, no matter how bad they were. Messrs. S. P. Rielly and H. Mezger wished to know if cement or watertight floors would be required in cowsheds.

**ROADS.**—The Hon. Secretary was instructed to write to the Lands Department, and ask for the Flowerdale-road and its termination to be defined; also for the proper name of the continuation of the same road to Preolinn through T. B. Margett's property, and the proper name of the road *via* Tucker's. A lot of misunderstanding exists with regard to these roads, and in view of Government money being spent on them, members thought it desirable that each road should be distinctly named, so that no mistake might arise with regard to the votes for each.

**THE BIG HILL.**—Mr. Stuart wished to know if the vote for the Flowerdale-road (including the Big Hill) would be spent in continuous metalling on the far end of the road. Mr. S. P. Rielly said that the hill must be the first consideration. The matter was postponed pending a reply from the Public Works Department.

**PAPER.**—The discussion on Mr. Horton's paper, "Tramways for Back Country," was postponed till next meeting.

### Wattle Grove, December 6.

**PRESENT.** MESSRS. E. Baldwin (Chairman), G. Hirst, H. W. Smith, F. Conlon, T. K. Wilson, J. P. Dircen, W. C. Jones, K. Lord (Hon. Secretary), and one visitor.

**NEW MEMBER.**—Mr. Leitch was elected a member of the Board.

**PICNIC.**—It was decided that arrangements for a picnic be made at next meeting.

**VETERINARY LECTURE.**—On the motion of Mr. Hirst it was resolved that application be made for a veterinary surgeon to lecture at Wattle Grove.

**FRUIT-GROWING.**—Mr. Hirst undertook to read extracts from several works on fruit-growing for the benefit of members at next meeting.

**APPLE-PRODUCTION.**—Mr. Jones offered to furnish the approximate cost of producing a bushel of apples.



An Orchard at Glenora.

## METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING DECEMBER, 1910 AND 1909.

Station.	1910.	Wet Days.	1909.	Average.
<b>NORTHERN.</b>				
Marrawah .....	...	...	249	—
Cape Grim .....	269	18	273	223
Sunny Hills .....	...	...	428	—
Irish Town .....	502	25	460	—
Black River .....	309	22	319	281
Stanley .....	213	22	291	230
Flowerdale .....	104	23	300	...
Flowerdale, Upper .....	...	...	374	284
Yolla .....	571	26	300	—
Wynyard .....	336	22	226	—
Burnie .....	426	21	250	241
Ridgley .....	150	21	353	...
Ulverstone .....	342	...	...	178
Kindred .....	392	21	278	—
Devonport .....	300	19	244	211
Latrobe .....	...	...	239	295
Northdown .....	...	...	160	190
Beaconsfield .....	463	15	203	—
Low Head .....	337	16	144	161
Black Bluff .....	908	22	...	—
Moina .....	611	23	...	...
Gunn's Plains .....	...	...	280	321
Central Castra .....	499	13	336	299
Wilnot .....	477	19	315	...
Gawler .....	...	...	259	211
Sheffield .....	416	14	317	...
Deloraine .....	392	16	...	229
Caveside .....	398	16	353	...
Cressy .....	280	16	224	137
Longford .....	311	16	203	171
Eyandale .....	...	...	185	...
Westbury .....	337	15	256	154
Carrick .....	287	18	204	...
Launceston .....	324	18	187	188
Glengarry .....	408	18	261	197
Frankford .....	437	13	313	212
Exeter .....	406	15	223	...
Lilydale .....	482	16	150	286
St. Patrick's River .....	490	19	...	...
Springfield .....	526	23	204	252
Springfield South .....	563	18	224	...
Scottsdale .....	442	19	148	259
Bransholm .....	...	...	116	...
Ringarooma .....	*507	...	205	253
<b>WEST COAST MOUNTAIN REGION.</b>				
Whale's Head .....	407	15	...	...
Mt. Balfour .....	727	23	557	...
Magnet .....	*1017	...	934	...
Waratah .....	1034	24	983	562
Guildford .....	...	...	257	...
Tullah .....	...	...	1024	...
Mt. Read .....	1255	26	1294	821
Dundas .....	1061	25	...	...

\*Telegraphic reports only.



## RAINFALL—continued.

Station.	1910.	Wet Days.	1909.	Average.
Heazlewood ... ..	1001	25	—	—
Zeehan ... ..	1119	27	1108	665
Mt. Lyell ... ..	1343	27	1484	858
Queenstown ... ..	1110	24	1182	—
Strahan ... ..	—	—	—	576
Cape Sorell ... ..	322	25	442	276
Pillinger ... ..	836	21	713	—
<b>CENTRAL PLATEAU.</b>				
Great Lake ... ..	—	—	90	256
Roscarboro ... ..	390	21	—	—
Clarence ... ..	629	18	—	—
Bronte ... ..	405	17	—	—
Steppes ... ..	262	13	—	—
McGuire's Marsh ... ..	321	19	—	—
Woods' Quoin ... ..	338	23	—	—
Interlaken ... ..	—	—	186	209
Dog's Head ... ..	456	13	—	—
<b>DERWENT VALLEY.</b>				
Glenmark ... ..	408	19	421	—
Bashan ... ..	—	—	265	273
Osterley ... ..	369	15	—	—
Bothwell ... ..	—	—	177	192
Hamilton ... ..	223	20	151	155
Ellendale ... ..	360	19	480	276
Glenora ... ..	213	18	241	205
Belmont ... ..	—	—	115	154
Clarendon ... ..	156	12	108	180
New Norfolk ... ..	198	17	213	189
Uxbridge ... ..	245	18	479	299
Lachlan ... ..	—	—	246	210
<b>SOUTH-EASTERN.</b>				
Ramsgate ... ..	—	—	433	—
South Bruni ... ..	365	21	398	304
Adventure Bay... ..	412	14	—	—
Southport ... ..	*350	—	463	276
Lunawanna ... ..	277	8	271	—
Port Esperance... ..	444	22	349	293
Port Cygnet ... ..	366	19	291	—
Petchey's Bay ... ..	346	20	329	—
Middleton, Channel ... ..	333	20	—	—
Kettering ... ..	350	17	327	—
Franklin ... ..	356	13	—	—
Kingston ... ..	372	20	—	301
Mt. Nelson ... ..	265	7	161	206
Mt. Wellington (Gap)... ..	731	22	322	—
The Springs ... ..	840	22	481	479
Hobart Observatory ... ..	291	13	187	187
Hobart Botanical Gardens	296	13	191	174
Hobart Waterworks ... ..	—	—	268	257
Glenorchy ... ..	286	14	281	208
New Town ... ..	—	—	—	198
Bellerive ... ..	227	8	140	147
Lindisfarne ... ..	275	12	164	—
Rokeby ... ..	—	—	145	183
Sandford ... ..	233	7	171	165
Premaydena ... ..	278	9	446	—
Carnarvon ... ..	429	21	581	288

\*Telegraphic reports only.

## RAINFALL—continued.

Station.	1910.	Wet Days.	1909.	Average.
Sorell ... ..	352	21	188	201
Cambridge ... ..	245	9	165	183
Craigow ... ..	139	8	150	—
Richmond ... ..	288	12	205	184
Brighton ... ..	211	12	207	166
Tea Tree ... ..	173	11	165	—
Bagdad ... ..	284	11	183	196
Broadmarsh ... ..	—	—	172	—
Kempton ... ..	185	15	192	145
MIDLAND.				
Spring Hill ... ..	222	15	208	182
Jericho ... ..	214	16	255	—
Mt. Seymour ... ..	301	20	247	—
Oatlands ... ..	365	22	191	189
Bow Hill ... ..	332	14	—	—
Andover ... ..	539	16	163	218
Woodbury ... ..	240	17	104	—
Beaufront (Ross) ... ..	372	14	121	149
Bendeemer ... ..	404	15	237	221
Glen Connell ... ..	451	14	167	191
Campbell Town ... ..	481	18	165	153
Hanleth ... ..	346	10	137	179
EAST COAST.				
Kellevie ... ..	513	15	283	—
Buckland ... ..	466	18	231	—
Triabunna ... ..	510	15	180	221
Swansea ... ..	375	13	81	190
Riversdale ... ..	390	12	67	218
Cranbrook ... ..	—	—	—	276
Lake Leake ... ..	466	12	196	210
Ornley ... ..	309	14	57	158
Fingal ... ..	198	7	67	146
Cullenswood ... ..	222	13	125	159
St. Marys ... ..	305	10	122	—
Tower Hill ... ..	396	8	126	—
Mathinna ... ..	349	13	115	188
Scamander ... ..	*256	—	112	137
St. Helens ... ..	249	17	94	158
Gould's Country ... ..	553	16	142	294
Lottah ... ..	639	24	176	335
Poimena ... ..	—	—	80	450
Eddystone Point ... ..	373	15	93	—
Boobyalla ... ..	230	14	74	163
KING ISLAND.				
Cape Wickham ... ..	153	18	133	141
Yambacoon ... ..	—	—	222	152
Currie Harbour ... ..	638	23	189	—
Monk Breton ... ..	—	—	162	—
Surprise Bay ... ..	537	24	—	—
OTHER ISLANDS.				
Kent Group ... ..	—	—	144	179
Flinders Is. (Thule) ... ..	—	—	97	196
Goose Island ... ..	304	10	125	—
Cape Barren Island ... ..	—	—	115	—
Swan Island ... ..	—	—	84	152
Maatsuyker Island ... ..	—	—	266	220

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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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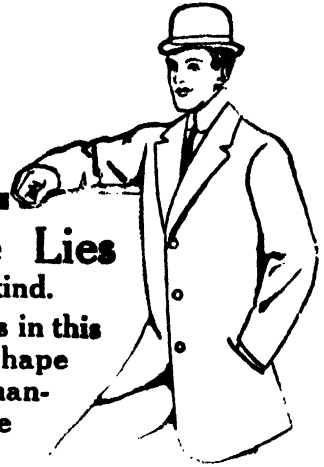
## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

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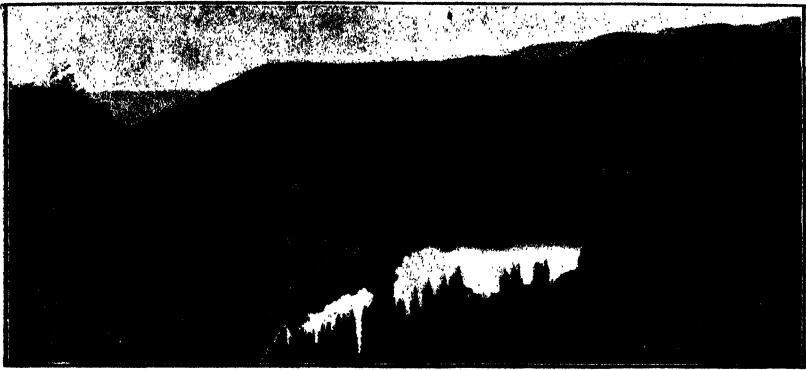
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THE JOURNAL OF THE AGRICULTURAL DEPARTMENT,  
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VOL. XIX., No. 2.

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PRICE  
THREEPENCE

## THE POTATO AS AN ARTICLE OF DIET.

THE cultivation of the potato in parts of Tasmania, more particularly what is known as the North-West Coast, is of such importance that more knowledge should be disseminated as to its origin and introduction into Europe and elsewhere. The home of the potato is in Chili, where the wild form is found, and it is supposed to have been brought by Spaniards to the Northern Hemisphere some 400 years ago. Its introduction into England is credited to Sir Walter Raleigh on the occasion of his return home from a visit to America. The tuber itself is one of those remarkable examples of how Nature makes provision for the continuation of its species, and consists of a deposit of reserve material in a modified stem, which has been more highly developed by artificial selection.

The potato tuber possesses two skins, the outer one being merely a continuance of the skin or bark of the rest of the plant. The inner skin, or the layer beneath the outer, or true skin, contains all the colouring matter present, and is the portion which turns green if kept in the light.

The illustration on page 55 will show more clearly the relative amounts of the constituents contained in this vegetable.



The composition of the potato is given as follows:—

	Per cent.
Water ... ..	75·0
Albuminoids... ..	2·1
Fat... ..	·2
Starch, &c. ... ..	21·0
Fibre ... ..	·7
Ash ... ..	1·0
	<hr/>
	100·0
	<hr/>

Taking 100 lb. of the potato we find that the total organic matter (digestible) will amount to 21·3 lb., made up as follows:—

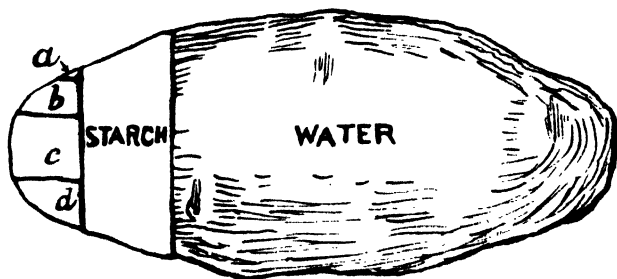
Albuminoids, &c. ... ..	1·4
Fat... ..	·1
Starch, &c. ... ..	19·5
Fibre ... ..	·3
	<hr/>
Total ... ..	21·3
	<hr/>

The large proportion of starch which the potato contains shows that it is mainly a heat and fat producing food, the proportion of the nitrogenous to the non-nitrogenous (starch) matter being as low as 1 : 14·3, reckoning the whole of the nitrogen as albuminoids, but when the true albuminoids only are taken into account the proportion widens to 1 : 41.

From the foregoing it will be noticed that the potato is a very one-sided food by itself, supplying practically only starch, which is capable of furnishing heat and energy when consumed in the body, but cannot build up or repair muscular tissue. A growing child or animal, even if it could be induced to eat, would not make much headway if its menu were restricted to the noble tuber, and the employment of meat, eggs, peas, beans, or any other members of the leguminous order will thus be seen to be indispensable to get the best results.

The above instances the propriety of supplying what is known as a balanced ration, one in which the several ingredients required to perform the various functions required by the animal are blended in a fairly representative manner. This, of course, will require to be altered or modified according to the age of the animal being fed. A young beast has to get from its food material to form bone and muscle as well as generate heat to keep up body temperature and supply energy. In a mature animal the bone and muscle are provided, and unless milk is being given a ration with a comparatively low nitrogenous content can be supplied.

Although very low in nitrogenous matter the potato does contain some, which is mainly present in the juice. Analyses show that the potato contains 75 per cent. of moisture. Now, the method of cooking the vegetable will largely determine as to whether the soluble ingredients are lost or retained. The reason for cooking is that in the raw state the starch grains are surrounded with cell-walls of very indigestible matter. When cooked, however, the cell-walls are ruptured, and the grains are broken up into a condition much more easily acted upon by the digestive juices. Heat coagulates albumin and prevents the extraction of similar material in the inside of the tuber. When potatoes are peeled and soaked in cold water before boiling any soluble matter will be extracted, but if placed at once into hot water this loss will not occur. It will be at once apparent that boiling tubers in their "jackets" should be adopted to save any waste.



COMPOSITION OF THE POTATO: *a*, fat; *b*, crude fibre and other carbohydrates, exclusive of starch; *c*, protein; *d*, ash: after Langworthy.

As to whether potatoes are ever injurious to health is interesting. There is no doubt that in ordinary circumstances they are a valuable article of diet, yet some people pass them by on account of being indigestible, especially waxy ones. But there are odd patients who cannot take strawberries and cream without distress. Cases of actual poisoning through solanin have occurred, but the amount of this ingredient in fresh tubers is too small to take any notice of. It is only in old, sprouted potatoes that any danger lies from their consumption.

### PROPOSED EXPERIMENTAL FARM.

THE following remarks dealing with the proposal of the Director of Agriculture *re* the above were made by the Chairman (Mr. L. Rodway) at a recent meeting of the Queenborough Board of Agriculture:—

Gentlemen,

The chief business before you to-night is the question whether the Government should establish a State farm, or some allied institution, for the purpose of giving technical instruction in some or all of the multi-

farious subjects required to be known by those who desire to earn their living on the land.

The principle need not be questioned, for the Government has long since recognised similar education to be within its province. The State provides some thousands a year to maintain a University where youths may be trained for a career in the learned professions, and other thousands for the support of technical schools for the better teaching of arts and crafts. If this is rightly so, there is no question but that the same policy should be pursued with agriculture and the allied arts and sciences. This group of subjects is not only of most profound importance, but upon their proper understanding largely depends the wealth and well-being of the State. This is recognised elsewhere, and the good work done by the agricultural colleges of Victoria and New South Wales testifies to its value. Our more fortunate sons may attend these institutions, but it is quite time that we had an efficient school in our midst, not only that farming under our peculiar local conditions may be properly taught, but that all, whether endowed with worldly goods or not, may have an equal chance of bettering themselves, and improving the conditions of the country.

While all recognise the profundity and variety of the various phases of agriculture, dealing as it should with climate, soil and manures, stock, crop, fruit, forestry, breeding, and marketing, besides the all-important matters of disease in animals and plants; still, too many think that the best way to learn all this is a casual apprenticeship to a small farmer, and then shift for oneself. We will not grasp another fact, namely that the science of agriculture is rapidly advancing all over the world; that in these days of profuse publication and rapid transit the facts gained by this reform are available to whoever will learn, but that there is only one way in which they can be economically modified to suit local conditions, and properly taught, and that is by an up-to-date Government institution unhampered by thoughts of expense. Therefore I think the advisability of establishing a properly-equipped agricultural technical teaching place to be without question, and probably for us the best form such an institution can take will be in the form of a State farm.

Unlike a university, technical, or State school, a State farm will be directly reproductive, but it should no more be expected to be self-supporting than these others. Why should agriculture, which is without doubt the most important calling in the country, be marked out as peculiarly unworthy of State aid? It surely is as well to make a man a good farmer as it is to make him a profound lawyer or an efficient plumber.

The locality of the State farm is of great importance; it should be placed where good average conditions are met with. We must remember though our island is small its conditions are most varied. We have highlands and lowlands; districts where the rainfall may be measured

by feet, localities of unfortunate dryness; fertile tracts and indifferent soils. To teach for all Tasmanian conditions in one spot will require considerable ingenuity. Otherwise, as long as the State farm is within easy reach of the railway it matters little whereabouts in Tasmania it is placed; a few hours' journey will always reach it. One more question should be considered, and that is the matter of area. Far better have more land than may be required than to find in a few years expansion is stopped for want of space. It has been suggested 500 acres should be sufficient; so it may for a few years, but if the work is properly done without doubt this will be all too small to accommodate the various branches. It will be far better at the outset to acquire a liberal estate than in a few years to have to shift the whole establishment because it is cramped for room.

### HOW DAIRYING AFFECTS FERTILITY.

WHERE butter-making has been carried on in the United States for a number of years, the farms have steadily improved in production. Where cheese-making and milk-shipping has been the rule, farms have steadily declined in producing power. The reason is not far to seek. A ton of butter contains only about 50 cents' worth of fertility, and that only in what casein is left in the butter, whereas a ton of cheese contains about 30 dollars' worth of fertility. Consider what must be the final effect on the fertility of a farm where the milk is constantly sold off. If the owner of the farm realised what he was about, and purchased fertilisers to make up for this drain, the farm would not suffer. But not one farmer in a hundred will do this until it is too late. The milk of every cow that gives 4000 lbs. a year contains about 6 dollars' worth of fertility. If fed to calves and pigs after the butterfat is taken out, fully 80 per cent. of this fertility is saved to the farm. This would amount to 4·80 dollars per cow. Suppose the milk-shipping farmer has 30 cows. This would amount to 144 dollars a year. Now, will the milk-shipping or cheese-making farmer buy 144 dollars' worth of fertiliser a year to make up for the loss of this fertility? Not one in a thousand will do it. And yet he must do it or else the farm is being steadily drained of its fertility. Good dairy farming consists, first of all, in so managing as to keep up the fertility of the land; next, in the production of the right kinds of crops and curing them in a way that will yield the largest amount of nutriment to the cows; lastly, in so managing to have the best cows possible to feed the crops to. Here are the three cardinal principles of dairy farming—good land, good crops, good cows—but at the bottom lies good land and a farmer wise enough to keep it good.—[“Hoard's Dairyman.”]

## A COURSE OF INSTRUCTION IN PRACTICAL DAIRYING.

By A. CONLON, Government Dairy Instructor.

**S**UCCESS in dairying naturally implies the possession of a herd of cows each individual animal of which shows a profitable return at the end of her period of lactation. In other words, the gross value of the milk produced by each cow in the herd, added to the value of the calf, should be considerably greater than the cost of caring for and feeding the animal through the season. To attain this end many dairymen pin their faith to certain breeds; others prefer to lean on conformation, dairy type, &c., when selecting their cows, but all agree in the advisability of restricting the selection to animals of the orthodox dairy breeds.\*

Some of these breeds are at present not procurable in Tasmania, or, if present, are so few in number as to be practically out of the question so far as meeting any demand that might arise for the supply of sires or heifers. This applies more particularly to dairy Shorthorns, including Lincoln Reds and Illawarra Shorthorns, Devons, Red Polls, Kerry, Dexter Kerry, and Guernseys. The beef types of Shorthorn and Devon are well represented, however, but these cattle should be avoided by dairymen. It would be just about as sensible to use a Jersey sire on a herd of beef Shorthorns, as to place a beef sire at the head of a dairy herd. Ayrshires and Jerseys are the two dairy breeds which have received the most attention in Tasmania, and representative animals of these breeds may be found here equal in quality and type to the best that Australia can show, so that there is no longer any occasion for the practical dairyman desirous of purchasing a high-class Jersey or Ayrshire sire to pass by the local breeders and import from outside the State.

Opinions naturally vary as to the merits of the various breeds, but it may be taken as an axiom that all the recognised British breeds are suitable to Tasmanian conditions, and that a man is much more likely to score a success by grading up to a sire of a breed he is partial to than to one he has no fancy for. At the same time, in the choice of a sire the dairyman should be guided more by the class of country he possesses, and the particular branch of the industry he is following rather than by his partiality for a particular breed. Big cattle require good country. The buttermaker or the supplier of cream to a factory looks to the percentage of fat in his milk rather than to the size of his cattle; the milk-supplier to towns, and the cheesemaker, both look for a copious supply of milk of normal richness. It will thus be seen that there are many factors bearing upon the question of the most suitable

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\* Copies of these articles may be had upon application to the Director of Agriculture. When complete, the series will be bound in book form for distribution to dairymen.

breed to choose; for instance, a man with ample scope in the way of good feeding-land would have little difficulty in making dairying pay well with Shorthorns, quite independently of whether dairying was the sole business, or only an adjunct of mixed farming and grazing. Steers and calves of this breed would have a value proportionate to their size and quality, and form an important feature in the scheme. On the other hand if on the same land dairying was the sole business, and butterfat the principal consideration, it is just possible that it could be more economically produced by a herd of Jerseys, notwithstanding the extra value, on account of size, of the Shorthorn steers and calves. These are the considerations which should guide the dairyman in his endeavours to choose the breed of dairy cattle most likely to meet his particular requirements.

Bearing in mind that in the selection of dairy cattle the chief object to be kept in view is the purpose for which the milk is required, and restricting the selection to the pure breeds, we would suggest that a Tasmanian dairyman on good land should select from the following breeds, when cream or butter is the chief consideration:—Dairy Shorthorns (including Lincoln Reds and Illawarras), Jerseys, Guernseys, and Ayrshires. For moderate or exposed country, Ayrshires, Kerries, and Dexters would be suitable; whilst for cheesemaking and milkselling, we would suggest Ayrshires, Holsteins, Shorthorns, and Red Polls.

The following summary on the characteristics of the various dairy breeds may be found useful for reference:—

#### SHORTHORNS.

The Shorthorn is undoubtedly the greatest of all the British breeds, as it is also the most widely distributed, not only throughout Great Britain, but practically in all parts of the world where dairying is carried on to any great extent; in fact, the Shorthorn has been successfully acclimatised in countries of the most diverse conditions of soil and climate. This adaptability is the great characteristic of the breed, which is noted throughout the world for the production of both beef and milk of the highest quality. Shorthorns are also known as Durhams, this being what may be termed the geographical name of the breed, which originated in the English county of that name late in the eighteenth century. There is a greater variety in colour and type of Shorthorn cattle than is to be found in any other pure breed. The orthodox colours are roan, white, and blood-red; but the white cattle are not now esteemed so much by breeders as formerly, and the blood-red colour is to be found principally in the Lincolnshire Shorthorns, the celebrated Lincoln Reds which have of late years come to the front and beaten all-comers at the various milking trials and competitions in Great Britain.

The Lincoln Reds are noted for good length of frame, and are very hardy. They have a wonderful capacity for milk, as will be seen by a reference to the records kept by Mr. John Evens, of Burton, near Lin-

coln, who is the most conspicuous breeder of these cattle. Forty-eight cows that calved during 1906 yielded 385,261 lb. milk; average per cow, 802 gallons (including 17 first calf heifers). The improvement of this herd upon modern lines of record-keeping, selection, and culling was started by Mr. Jno. Evens in 1885. In 1895 the Lincolnshire Red Shorthorn Association was founded, and issued its first "Herd-book" in that year. The number of bulls listed at the present time is, approximately, 2000. There are no Lincoln Reds at present in Tasmania. A few are to be found in New South Wales, and the Queensland Government has quite recently imported representative animals of the breed for stud purposes. The Illawarra Shorthorns are the justly famous South Coast cattle of New South Wales, where the breed has been evolved and the type fixed. Those desirous of obtaining full information with respect to these cattle are referred to an excellent work recently published in Sydney, entitled "First Century of Dairying in New South Wales," by Frank McCaffrey.

## AYRSHIRE CATTLE.

*Pedigree and Winnings in Tasmania of Ayrshire Bull, "Lessnessock's Laddie," and Ayrshire Cow, "Lily."*

Bull.—"Lessnessock's Laddie"—

Sire—"Lessnessock," imported from Scotland.

Dam—"Royal Favorite the 2nd."

G. Dam—"Favorite of Gowrie II."

G.G. Dam—"Young Favorite."

G.G.G. Dam—"Favorite of Fyans."

Winnings:

First, Launceston, 1909.

First, Longford and Hobart, 1909.

First, Champion, and Special, Launceston

First, Champion, and Special, Hobart.

First, Latrobe, 1910.

Has an unbeaten record in Tasmania.

Cow "Lily," bred and owned by Mr. Alf. Fry—

Sire—"Marquis of Oakbank."

Dam—"Snowflake."

G. Dam—"Cowslip."

G.G. Dam—"Cowslip of Fyans."

G.G.G. Dam—"Russell."

Winnings:

First and Champion, Launceston, 1909.

First and Champion, Longford, 1909.

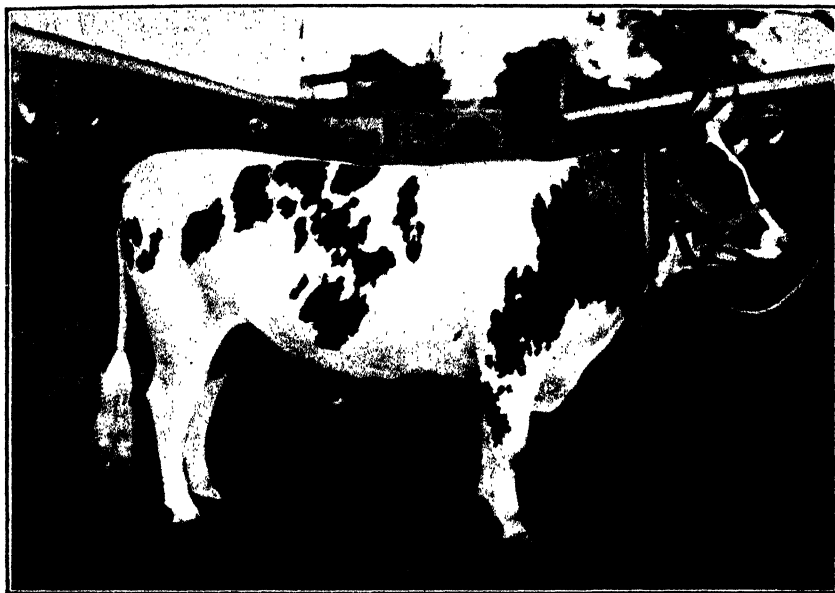
First and Champion, Hobart, 1909.

First and Champion, Launceston, 1910.

Special, Launceston, 1910.

First and Champion, Hobart, 1910.

First and Champion, Latrobe, 1910.



Ayrshire Bull: "Lessnessock's Laddie," owner by Mr. Alf. Fry, Newstead.



Ayrshire Cow: "Lily," owned by Mr. A. Fry, Newstead.



## THE BACON PIG: SOME ODD THOUGHTS.

By R. J. TERRY, Poultry and Bacon Expert.

**D**ESPITE the fact that a pig of some type is found on practically all farms in Tasmania, the general farmer has not quite grasped the idea that times have changed as regards bacon-curing. The public (who pay and consume the article, and are entitled to the last say) demand a very different side of bacon in 1910-1911 to that which passed muster 10 years back in this State. As previously stated the farmer, especially in the more remote districts, does not fully grasp this aspect of the position, so fails to cater for it. I had this very much impressed upon me recently when lecturing on this subject. The bacon factory asks for a pig weighing 120 lb. "We send it along weighing the stipulated weight and get a note saying pigs are not quality, and a reduced price is given," remarked some farmers present. I hope that I was able before leaving that district to help to put matters right, by pointing out the great difference in returns or profit to the retailer who is cutting up an ideal side of bacon of a given weight as against a bad-shaped side of the same weight.

I must again impress upon my readers that the bacon pig is one with long body, medium shoulders, deep sides, ham remarkable for length rather than thickness, back not wide, slightly arched, and carrying width evenly along, full over loin, no crest over the shoulder, sides straight, so that a straight-edge will touch evenly from the fore part of shoulder to rear of ham. From front of shoulder to point of nose should be tapering, with a slight bulge at jowl. This pig, with about 1½ inch of fat, evenly distributed along the back, the sides reasonably thick with marbled meat, is an ideal bacon pig, and its value sets the price for all others. The breeds from which to get this type of pig are notably the Yorkshire and Tamworth and their crosses; either of these crosses with the Berkshire gives good results. In other words, if this class of pig will cut up with the most profit to the retailer owing to the large proportion of prime cuts or joints, it naturally follows that the bacon factory can obtain top prices for it, and therefore give the price to the farmer; whereas a side of bacon of equal weight, large and coarse in shoulder, short and spare in loin and ham, and thin in belly, would probably return 10s. or 15s. less to the storekeeper, hence he cannot pay the factory the top price for this class of goods. The factory retaliates by returning less to the farmer. It is a purely commercial transaction, and the remedy is in the farmer's own hands. In previous notes the question of breed has been dealt with, but whether the boar used is Yorkshire, Berkshire, or Tamworth, it should be typical of the breed, bearing in mind the qualities required for the ideal baconer. Care should be taken when selecting a sow for breeding. What is wanted is a thrifty, well-proportioned animal, with long body, well set on good strong

legs. She should not be too coarse, and should have at least 12 teats, thus showing capacity for good large litters, with the accommodation for raising them. Young sows should be liberally fed on flesh and bone-producing foods, such as crushed oats and bran. In summer they should have a run on clover, and in winter comfortable quarters, with access to the yard. It should never be forgotten that exercise is essential for breeding sows. Sows should not be mated before they are nine months old. The farrowing pen should be roomy and warm, with just a sufficiency of litter. In very cold weather it is a good plan to heat a couple of bricks, and put them in a basket, cover with chaff, and then put the young pigs on this until all are farrowed, when they may be placed near the teats. For the first 24 hours after the farrowing give the sow nothing but, perhaps, a drink of warm water, as food or slops may kill her. [The act of a sow in eating her young is often the fault of her owner in feeding heat-producing food prior to farrowing, and giving little or no exercise.] Yorkshires and Tamworths make good mothers, and usually produce larger litters than most other breeds.

Some readers may think that following some of these hints means extra work, but if the work is done at the right time it often saves labour and loss subsequently. Frequently whilst visiting farmers my notice is drawn to sows which have produced 14 or more pigs in a litter, and upon asking how many reared the answer often is not half the number. It is the number reared the farmer obtains his returns for, not the number produced; yet, with repeated accidents, crushing of young by sow, &c., some loss is unavoidable. How many piggeries in Tasmania have the farrowing pen fitted with a rail to prevent the sow crushing their young. The cost would only be a few pence, for timber or suitable sapling could in many cases be secured from the bush.

After farrowing the sow should be fed very moderately for a few days, as liberal feeding may produce milk fever. After arriving at her normal condition feed her and give all she will eat up clean. As pigs grow older, provide some way so that they can get at a small trough outside the pen, where some crushed oats or sharps are kept moistened with milk. This helps them wonderfully, and prepares them for doing for themselves. Castrate at about five weeks old. In case of ruptured pigs, when castrating, make as small incision as possible, push the bowels back carefully, and put in two or three stitches with strong needle. Wean the pigs at seven or eight weeks old. In doing so, have some consideration for the sow, and shut her out for, say, 12 hours, and then return her for a few minutes. Repeat this for a couple of times, as it relieves the sow very much, and helps the young pigs along. The sow may again be mated about the fifth day after the first separation. Much depends on how we care for the young pigs after weaning. The old saying that "feed is half the breed" is true, if we include the methods of feeding. Feeding largely on food that tends to produce fat without sufficient exercise being given will often change a little Yorkshire into a thick, fat type,

or may cause such a derangement of the digestive organs that will render it profitless.

Indigestion may show itself by the pigs failing in flesh, loss of appetite, roughness of hair, scaliness of skin, teeth becoming black, &c. The last condition is often thought to be the cause, rather than the effect. It is, together with the others, but an evidence of injudicious feeding. In cases some young pigs get so fat that they die from what is known in England and America as "thumps." In all cases proper food and exercise will prevent, and in a measure remedy, them. "Prevention is better than cure."

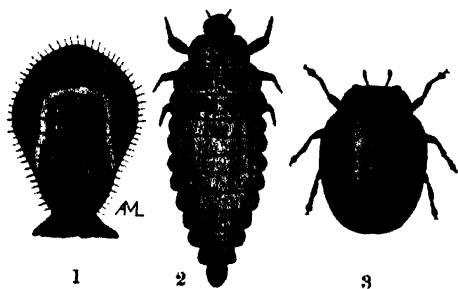
As to food, sharps and skim milk are the ideal food for young pigs. In a month's time, a mixture of oats and crushed barley may be added. As the pigs grow older, whole peas steeped for 24 hours may be fed. Roots in winter and clover pasture in summer will in all cases reduce the cost of production. Charcoal or hardwood ashes and salt should be within reach at all times, or lacking this ordinary coal. A farmer friend in the old country always kept a box of what was called coal slack, to which all pigs had free access. In a wild state the pig obtains the greater part of his food by rooting and grubbing in the ground, and during the process a large quantity of soil, grit, and earthy matter finds its way into the stomach. This is nature's provision, and must not be overlooked. The domesticated animal, on the other hand, living probably in a sty, and furthermore being ringed to prevent rooting, is unable to obtain grit unless it is supplied by the attendant. The rations of pigs, consisting, as they do, of meal, slops, and green food generally, are not calculated to supply this essential ingredient. What then do we find? Young animals become weak and stunted, being unable to obtain the full amount of nourishment from the food they take into their stomachs; older stock suffer from digestive troubles, and turn into what the farmers call "bad doers." Young pigs just weaned are very liable to fits, owing to their sudden change of diet, and the fact that their stomachs require accustoming to an entirely new class of food. In all such cases an allowance of coal slack will be found highly beneficial. A small heap should be found in every sty, and kept constantly renewed as it is eaten by the animals. It is astonishing to note how greedily even the youngest pigs will devour it, showing that it has long been needed. Cattle, sheep, and horses all derive benefit from frequent access to salt, a good lump in the paddocks or stables being a fine preventive against many minor disorders. The pig, however, cannot take salt with impunity, though to be sure, he often receives more than is good for him in the swill. The value of charcoal in the form of biscuits is appreciated by human beings; why should it not be equally suitable in a rougher form for pigs, whose digestive apparatus is not dissimilar? Besides slack coal a few sods of turf should be thrown occasionally into the sty. The animals will enjoy rooting at them, and the alkalis of the earth, some of which they will certainly eat, will tend to correct any acidity of the stomach.

## A MINUTE BUT USEFUL LADYBIRD BEETLE.

By ARTHUR M. LEA, F.E.S., &c., Government Entomologist.

**I**N dry summer months the red spider (*Tetranychus telarius*), red mite (*Bryobia pratensis*), and other mites often become very troublesome, and seriously injure the leaves of many fruit trees, vegetables, and garden plants. They cause the leaves to become speckled, and often to fall before their time; and they often cause dwarfing of the leaves and young shoots.

On examining affected leaves, there may often be seen feeding on the mites a very minute ladybird, in size about half that of the head of an ordinary pin. It is entirely black, except for parts of the legs, which are of a dingy brown, and for some very fine greyish down, which clothes the upper surface. One such ladybird will eat many red spiders or red mites in a day, but its larvæ are even more voracious. When full grown



*Scymnus vagans*—1 Pupa, 2 Larva, 3 Beetle (all enlarged).

these are about 1-12th of an inch in length, flattened, of a greyish colour, and with six dark spots. When full fed (by which time each has probably consumed some hundreds of mites) the larva turns into a pupa, which is fastened by its tail to a leaf, face downwards. It is of a deep shining black on the upper surface, but white on the lower surface, except for a narrow black rim, and there are short, black bristles on its outer edge.

This ladybird soon attracted the attention of Mr. Albert Koebele, when he came to Australia for useful insects to send to the United States, and he sent several consignments of it to California; but the present writer is unaware as to how they prospered. The ladybird's technical name is *Scymnus vagans*, and it is known to occur in New South Wales, Victoria, and Tasmania, sometimes in abundance. A single lily leaf has been noticed to have hundreds on it. Recently at Macquarie Plains 14 were counted on a hop leaf. On apple leaves attacked by the red mite they are often so numerous that they have been blamed for the damage done by the mites themselves. They also feed on young thrips, and doubtless also on the young of scale insects.

## FRUIT-CULTURE IN TASMANIA.

By JOHN OSBORNE, JUN., Horticultural Instructor.

**F**RUIT-CULTURE in Tasmania dates back to the days of the early settlement of the island at the beginning of the nineteenth century, fruit trees being planted as soon as the land was sufficiently cleared for the purpose, these trees being preserved in the cases that were used to convey them from the Old Country. The first plantations were made near Hobart, along the East Coast, Derwent Valley, Oatlands, Tunbridge, Ross, Campbell Town, Ferth, Evandale, Longford, Hagley, Westbury, around Launceston, and along the River Tamar on either side.

These plantations were small, being known as the "House Orchards," and as a whole flourished exceedingly till the advent, in the seventies, of the codlin moth.

Very little was known of the habits of this insect, and as a consequence, nothing was done to keep it in check, the fruit being in many instances entirely lost.

The result was seen in the abandonment of the orchards, fruitgrowing becoming a lost art in many places in the State, particularly in the north.

After much agitation an Act of Parliament, well known as "The Codlin Moth Act," was passed in 1887. From thence onwards a steady improvement ensued, despite the fact that much opposition was shown, and at the present time, owing to the use of the spray-pump, assisted by arsenical mixtures, the codlin moth is the least feared among our orchard pests. During the early fifties the heavily-timbered country south of Hobart became the home of enterprising timbergetters, sawyers, and splitters, who were instrumental in settling the districts along the banks and near the Huon River. As time went on and the land became cleared these settlers began to grow crops, beginning with potatoes, turnips, and other roots; planting about the same time apple and pear trees, and adding from time to time such fruits as the peach, plum, black currant, raspberry, and gooseberry. As the sons and daughters of the sturdy old pioneers reached manhood and womanhood, new blocks of the heavily-timbered land were taken, and after much labour cleared and planted, new homes springing up in all directions, the supplies of fruit increasing largely year by year. Not satisfied with the interstate markets, or being anxious to enlarge their sphere of operations, some of the most adventurous essayed shipments to the markets of Great Britain. Some of the fruit reached its destination in a saleable condition; much of it arrived in an unsaleable state, entailing a great loss on the shippers. Nothing daunted, however, the pioneers persevered, till, at the present time, apples, and even the juicy pear, may, if gathered and packed with care, be shipped with perfect safety, so much improved are the arrangements for keeping the fruit at the correct temperature.

Similar developments on a smaller scale were taking place in the Derwent Valley, both sides of the river being used, the orchards in many cases being worked in conjunction with the hopgrowing industry.

As time went on the clearings were carried further into the heart of the forest, and orchards may now be found many miles inland from the river.

The lower reaches of the Derwent also received attention during this time, Glenorchy, Moonah, and New Town being largely planted; as also was the district known as Kangaroo Valley, now included in the Glenorchy Municipality.

The Bagdad Valley did not receive much attention from fruitgrowers till some 15 years since. It has now become almost fully planted. Smiling orchards and homesteads are to be seen on either side of the road that winds itself through the valley, the whole district speaking eloquently of the advantages to be gained from a closer settlement of the land.

Going east and north from Hobart will be found fruitgrowing centres — small, but earnest in their desire to produce a good article — Bellerive, Rokeby, Sandford, South Arm, Lindisfarne, Grass Tree Hill, Risdon East, Cambridge, Richmond, right out to the coast; Spring Bay, Swansea; and on to the new district near St. Helens. The Campania and Colebrook districts provide a fair area also, which is being added to each year.

The most remarkable development in the industry is seen in the great increase in the number of orchards planted on both banks of the River Tamar, and district to the west, including Glengarry, Winkleigh, Frankford, Beaconsfield; orchards ranging from a modest 5 acres to the largest plantation at Freshwater Point of nearly 200 acres.

When it is known that 10 years ago the writer was lamenting the fact that such large areas that were suitable for fruitgrowing were lying idle and practically useless the development that has since taken place is the more remarkable.

The orchards that are now beginning to produce fruit are doing the work with such results as to encourage intending orchardists, and it is likely that planting will be heavy on the banks of the river during the coming planting season. The north-western districts of Latrobe, Spreyton, Wesley Vale, Port Sorell, Devonport, and Don have for some years past been planting fruit trees for commercial purposes, with, in most cases, the best results. At least one of these orchards will, it is estimated, produce 1000 bushels during the present season.

Gradually the whole of the districts in the North-West are taking up the question of fruit-culture more or less seriously, in spite of the fact that certain persons have declared that the rich red soils would not grow fruit. The desire has taken hold of the people in the fertile agricultural districts of Lilydale and Scottsdale, in the north-eastern portion of the island, and there are some very striking examples of the

value of these lands for the purpose. The increase in planting has not been so great in these centres, but there are signs that at no distant date a large addition to the area under fruit in Tasmania (about 22,000 acres) will be made by residents of the districts mentioned.

*(To be continued.)*

## PHENOLPHTHALEIN TEST PAPER FOR THE BORDEAUX AND BURGUNDY MIXTURES.

IN the fruitgrowing, and lately also in the potatogrowing, districts of Tasmania considerable quantities of Bordeaux and Burgundy mixtures are used for spraying purposes.

Whilst the strength of the bluestone is practically constant, that of the limes and sodas varies considerably. It is well known that an excess of lime or soda is much less liable to do injury than an excess of bluestone, consequently many growers have adopted the practice of putting in far more lime or soda than is actually needed.

There are several tests for a properly made mixture, such as a nail or blade of a penknife, ferro-cyanide of potassium, litmus-paper, &c. But one of the best is made by dissolving a white powder known as phenolphthalein in alcohol, and saturating blotting-paper with this; then drying the papers, when they are ready for use.

If there is a sufficiency of lime or of soda in the mixture, on dipping the prepared paper into it, it will instantly turn pink. The slightest tinge of pink is all that is necessary, as the pink shows that the acidity has been neutralised; the deeper the pink the greater the needless excess of lime or of soda.

Test-papers can be obtained free of charge on application to the Department of Agriculture.

The practice of allowing the orchard to grow grass finds no place in the modern orchardist's system of fruit-culture.

It is estimated that a quantity of more than 10 tons of dry earth annually passes through the bodies of earthworms and is brought to the surface on each acre of land in moist climates.

Clover and other leguminous and turnip seeds can be tested quickly by rolling in flannel and dipping in boiling water for five minutes. On examination, good seeds will be found to have "sprouted," the cotyledons and radicle having burst out through their coverings; dead or bad seed will not so swell out.

A fertile farm is one whose soil contains nitrogen and mineral matter in abundance in a soluble or available form. The land must be in a good physical condition, enjoy a good climate with a favourable aspect, and the subsoil must also be suited to the system of agriculture attempted, and allow of free percolation of moisture.

## POULTRY.

By R. J. TERRY, Poultry Expert.

I HAVE at various times placed before the farming and poultry community generally of this State a series of articles, which first appeared in the columns of the "Agricultural Gazette," and which were subsequently published in pamphlet form. It was exceedingly pleasing to the author to find that the copies of each edition as it was got out found so much favour with those interested in the pursuit that all were readily taken up, and they are now out of print. It is now my intention to again have a series of articles running through the "Gazette," containing many more details of the poultry industry, including diseases, &c., which should prove very useful to poultry-breeders, and when sufficient has been written thereon they will be obtainable in pamphlet form, which will be found handier and more accessible to the average reader.

Before dealing with general management, diseases, &c., a chapter might very well be devoted to the question as to what place poultry should take in the industries of the State. A great amount of fiction has been written in the past, both by advocates and opponents of poultry-keeping, and possibly will continue to be written, judging from what one sees constantly being published. In order to cater for the industry articles are "lifted" from elsewhere and republished, no regard being at all paid to the local conditions. Tasmania, as is generally admitted, differs from other countries, and the breeding of poultry has to be followed according to the experience gained of climatic and other conditions, but when breeders have placed before them articles on poultry-raising which are not in any degree applicable to this State, great injury is being done to the industry. No trouble is taken to correct the articles in order to make them apply to local conditions. For it has to be remembered the seasons differ; the houses are to be made to face the north in Tasmania, instead of the south, as so repeatedly asserted; and in numerous other directions, an altogether fallacious policy in regard to poultry-breeding is being disseminated in that way. Another setback to the industry is that the keeping of poultry seems to appeal very strongly to the town-bred man or woman as an easy method of getting on the land. An idea appears to be prevalent that one has only to rent or purchase a few acres of land (far too few in most cases), invest in a medley of poultry appliances, and purchase 50 or 100 hens, to become a full-blown poultry farmer, who is going to make a decent living for the rest of his life with very little labour; in fact, he fondly hopes he has chosen the line of least resistance when adopting the life on the land. Alas, there are many failures. Men and women who are not physically equal to the hard work entailed in successfully managing a large poultry plant, on



a limited area of land, must go to the wall. Others start with too small a capital, hatch too many birds, and when the young are half or three-parts grown have to sacrifice them at a time when poultry are cheap, as they cannot meet the amount of the ever-growing food bill; whereas if they could have carried on for, say, another couple of months, the birds would have started to lay, and they might have succeeded. Again, other failures are what might be termed "lightning learners." Nowadays a short course of instruction is too slow for some hustling folk, if one may judge from the numbers who endeavour to compress a lifetime of experience (someone else's) into a few hours of rapid observation.

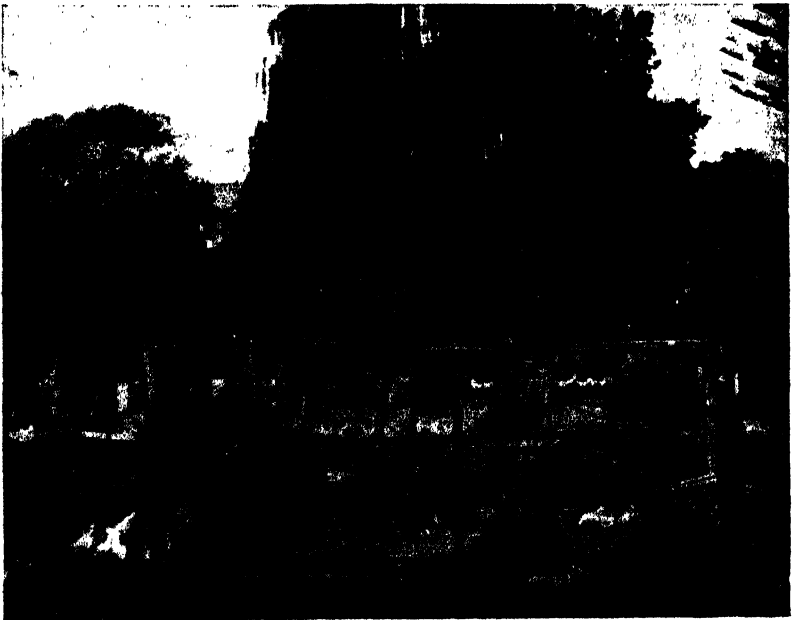
Possibly the process of poultry-management does seem a very simple one to the uninitiated, yet one must wonder at the curious mental composition of a recent visitor to the egg-laying competition, who after looking round the pens, made application for a complete day's tuition in poultry-keeping, as he knew of a person with some capital who would go in for poultry-raising on a large scale if he could find a partner who understood the work. This would be amusing if it were not true, but it unfortunately shows the light and airy manner in which poultry-breeding is viewed by some unthinking people. I wonder if he would have thought that day wasted had he stayed the day. I thought it better for him to start at the bottom of the ladder in the morning and climb us as he gained knowledge as the day progressed. The first duty apportioned him was to thoroughly wash out the drinking tins, and then brush out the houses. He departed. *Verb sup.*

Then there are those with just a little experience. They or their friends have kept a few pullets in their back-yard, and made a success of it. Do not let it be supposed that birds should not be kept in a back-yard. Far from it; and it will be shown later on what this class of poultrykeeper is doing for the industry, and incidentally for the State. It is desirable to show the fallacy of believing that because a man finds his six or twelve pullets pay him a profit of 10s. each per annum, he will therefore, if he devotes his whole time to the business, obtain an income of £500 from 1000 birds. This by no means follows. Yet it is possible to even exceed those figures. Given the right man and surroundings, but only then, can such success be attained.

It will be seen from the above remarks that in many cases the area of ground that a start in poultry is made upon is far too small. There are few problems in connection with practical, or rather intense, poultry-culture more difficult of solution than that of maintaining the land pure and sweet, and this fault brings about the downfall of many novices. Still, this difficulty is easy to overcome, and in fact two profits can be obtained from the one piece of land by judiciously combining a crop from the vegetable world. All these what might be termed avoidable difficulties will be dealt with and overcome in due course in subsequent articles.

It might be inferred from reading the above that it is doubtful whether poultry pays, but fortunately we are now in a position in Tasmania to give absolutely reliable figures as to the cost of keeping poultry, and the profit that may be expected when they are properly managed.

I make the statement without fear, being able to prove my words, that there is no stock on the farm that will give as quick a return or as large a profit on the initial outlay as the modern good egg-laying strain pullet. Neither has any other stock on the farm been put to such tests (and, bear in mind, repeated tests) as laying hens. One does not hear of pigs having all their food charged against them, even grass or clover, the carcase sold and returns published; and the same remarks apply to the dairy cow. Yet it will be admitted they are profitable animals to keep under certain farm conditions. But if the modern layer can come out top and show large profits under conditions harder than farm, truly it will bear repeating. There is nothing on the farm that will show the profit on the initial outlay that is shown by that wonderful machine, the egg-laying strain pullet. Admittedly it is the product of recent years, but it is with us now. Farmers can procure it, and it will be my aim in subsequent articles to instruct my readers as to its management.



View of Pens, Springvale Egg-laying Competition.

## PROCLAIMED WEED.

HEMLOCK (*CONIUM MACULATUM*, L.).

By R. A. BLACK, Federal Quarantine Officer (Plants), &c.

### EXTENT OF PROCLAMATION.

ON the 20th December, 1910, hemlock was proclaimed a noxious weed, under Section 6 of "The Local Government Act, 1906" (6 Ed. VII. No. 31), for the Municipality of Table Cape, but since then, owing to its poisonous nature, it has been proclaimed for the whole of the State.\*

### DESCRIPTION.

Hemlock is a tall (from 2 to 4 feet high), erect, branching biennial, with a shining, hollow, slightly ribbed stem, which is usually marked with dark-purple patches. Leaves several inches long, very graceful, and finely cut, dark-green on the upper and of a lighter shade on the under surface, stalks with prominent sheathing bases. The inflorescence is a compound umbel, composed of from ten to fifteen rays, surrounded by a general involucre of five, six, or seven persistent narrow bracts or floral leaves, the simple umbels having at their bases three or four, but chiefly three, united persistent smaller but broader bracts, which are situate on the side opposite to the central axis, and seem so irregular as to lead one to believe that a portion of them had fallen off.

**FLOWERS.**—Small, white, petals five, narrowing at their bases and appearing, owing to their inflexed tips, emarginate. Stamens five, slightly longer than, and alternating with, the petals. Styles two. Calyx inconspicuous. Fruit broadly ovate. Carpels two, with five conspicuous indented or notched ribs, the marginate ones being at a lower level than the dorsal ones.

**Seed.**—When mature hard, smooth, light-brown, conspicuously five-ribbed, and each rib minutely notched and of a lighter colour, hence their prominence; the spaces between the ribs, with small longitudinal, linear, wavy flutes. Shape: side view convex; face ovate. Size: 3.25 mm. long and 2 mm. broad. (Note.—1 millimetre equals .03937 of an inch.)

### PENALTY FOR NOT DESTROYING HEMLOCK.

It is now incumbent upon municipal councils to take action for its destruction. Section 3 of "The Californian Thistle Act, 1883" (47 Vict.

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\* A proclamation was issued on the 3rd February, and published in the "Gazette" on the 7th February, 1911.—ED.

No. 17), as read with Subsection XII. of Section 130 of "The Local Government Act, 1906," provides that: "If any occupier of land within Tasmania upon which land (hemlock) shall be growing at any time shall



Hemlock (*Conium Maculatum*, L.).

not effectively cut down all such (hemlock) then growing and being upon such land, so as to prevent the same from blossoming, every such occupier being convicted thereof shall be liable to a penalty not exceeding £20."

(To be continued.)

## GARDEN NOTES FOR MARCH.

By J. OSBORNE, JUN., Horticultural Instructor.

### KITCHEN GARDEN.

**T**HIS will be a busy month in the garden, as winter crops may be planted with good results, should good cultivation follow.

Cabbage and cauliflower may be planted, and where the soil is at all dry a thorough watering must be given prior to planting.

Lettuce for salads to be planted near water, as they are much better when supplied liberally with that commodity.

Spinach (winter or prickly), onions for spring use, carrots, and parsnips also, may be sown, using well-manured and deeply-worked soil. Keep the hoe going as often as possible.

Onions may be harvested, and care should be taken to have them dried thoroughly and preserved from bruising.

Prepare a bed for a small planting of good broccoli. To be successful the land should be deeply worked after manuring with well-decomposed stable manure.

Towards the end of the month, herbs, such as sage, marjoram, &c., may be cut, then tied in small bunches, and tied up for storing after drying.

A sowing of parsley may be made, using the borders of a newly dug bed, and be careful to cover the seed lightly.

Seed-beds should be prepared for a sowing of cabbage, cauliflower, and lettuce for mid-winter planting.

Water should be withheld from ripening crops, such as peas, beans, cabbage, and all crops that are intended for seed. This will assist the ripening process. Dig up all vacant beds, after manuring, as roughly as possible.

Asparagus beds, where the tops are ripe, may be cut down, and preparations made for topdressing. This should be made up of three parts of well-decayed stable manure and one part sea-sand (when procurable), the whole being well mixed before using.

Tomatoes should be looked over for grubs and other vermin that will be easily found during the month.

Celery beds should receive attention, and a sowing of radishes and strap-leaved turnips should be made.

Sea-kale should be freed from bleaching, and allowed to make a good autumn growth.

Small fruits, such as strawberries, raspberries, currants, &c., should be kept growing. Keep weeds down all the time. Where stable manure is being kept, the heap should be stirred up and turned thoroughly.

Late sowings of parsnips and carrots should be deeply watered, to allow the fleshy root to penetrate the soil.

Potato crops as they ripen should be lifted carefully. Do not bruise, especially where the tubers are to be stored. Sort out sizes suitable for seed, and keep them separate.

Give red beets liberal supplies of water during the early part of the month.

#### FLOWER GARDEN.

During the month the chief care in the garden will be the watering of all beds when conditions require it. Weeds also must be kept down, and should it be necessary to water heavily, an occasional hoeing or loosening of the soil will be a great help—the finer the tilth the less the evaporation.

Many of the earlier planted annuals will be much past their best. These may be removed, the beds well manured and dug up as deeply as possible, and allowed to remain for a few days in the rough.

Spring flowering bulbs should be planted, and if the beds are at all dry a good watering should be given the evening prior to planting.

Narcissus and hyacinths should be put  $2\frac{1}{2}$  inches deep in the soil; anemone, ixia, ranunculus, tulip, and bulbs about the same size should be placed at  $1\frac{1}{2}$  inch. When well through the soil a light "hilling" should be given by drawing the soil up with a hoe.

Plant pansies, dianthus. Intermediate and Ten-Week stocks, and any biennials that are ready in good situations and beds that have been well manured.

The earlier gladioli should be ripe enough to take up. Dry them carefully and scatter a little powdered sulphur among them. Store away from rats and mice.

The early planted Groff hybrids, or even the Gandavensis, may be ready, and will do with the same treatment.

Dahlias should be at their best, and may be well fed. This may be done by topdressing with short manure and watering through.

Chrysanthemum beds should receive attention, all loose shoots being tied in. A topdressing as suggested for the dahlia may be applied with advantage to the plants.

Keep weeds down, using the hoe at every opportunity.

A sharp watch for ripening seeds is necessary. These may be collected and placed in light paper bags, being stored in a dry rat-proof shed.

Carnations that have been rooted during the summer may be potted and held over for spring planting. The best plants of antirrhinum should be selected and cuttings taken, being put in shallow boxes or pots, using a light sandy compost. Be careful in watering; better to be a little on the dry side than over wet.

Cuttings of Marguerites should be treated in a similar fashion. These should be ready for planting in the spring.

### GREENHOUSE.

All that is necessary during the month will be to see that water is supplied in fair quantities, supplying ventilation freely.

Cineraria, calceolaria, and primula of sorts may require repotting. If such is the case use a good rich compost, giving a two-size shift; that is, if the 4-inch pots are in use, place the plants in a 6-inch pot, keep all these plants as near the glass as possible, and shading during the hottest part of the day.

All earlier flowering plants that have seen their best days may be removed. Pelargoniums that have been repotted should be watered sparingly.

Cuttings of the best petunias may be taken and placed in a light, sandy compost. Water carefully.

Achimenes should be doing well; streptocarpus, gloxinia, and gesenera also. Water carefully, and as the flowers and leaves begin to fail put aside, and withhold water from time to time.

Tuberous begonias may be treated in a like manner.

Syringe plants in the morning only.

### TRANSFER OF CARCASE MEAT TO VICTORIA.

THE following notice, dated December 22, 1910, under the hand of the Chief Inspector of Stock, is published for the information of all concerned:—

Carcase meat, including pork and bacon, may be shipped to and admitted into Victoria, provided that the provisions of the Victorian "Meat Supervision Act, 1900" (63 Vict. No. 1652), are complied with.

Meat of the kind specified above will only be received in the following meat areas:—The Metropolitan meat area; the Geelong meat area; and the Warrnambool meat area.

All carcase meat, or the covering enclosing the same, prior to shipment to Victoria must be branded in an easily legible manner with the word "Imported." In the event of such carcase or meat being fresh, frozen, or chilled, it must be accompanied by a certificate of an inspector of stock to the effect that such meat is wholesome.

Rock salt should always be within the reach of livestock on the farm.

The fine art of modern agriculture is as much beyond the uneducated and the untrained man as the art of sculpture is beyond the ordinary quarryman.

McConnell states that if a horse is fed with oats neat, they will be found to pass through him more or less whole; if, however, they are bruised, or mixed with chaffed hay so as to compel him to masticate them thoroughly, then the digestive secretions can attack and dissolve every particle, so that there is no waste.

## FORESTRY NOTES.

By L. RODWAY, Government Botanist.

## No. 10.—BEECH, WILLOW, AND OTHERS.

THE genus of *Beech* has a wider distribution on the surface of the globe than any other similar group of trees. Not only does it extend through Europe, part of Asia, and North America, but it appears again in Australia, New Zealand, and Terra del Fuego. Our common Myrtle and the deciduous Myrtle of the west are misnamed. They are true Beeches. These southern patches appear as remnants of a flora that once covered an extensive area. They are isolated remains now cut off from their nearest relatives by the broad tropic zone. This appearance of one genus of cupuliferous trees in southern places lends weight to the identification of others, as Oak, Willow, &c., in leaf beds.

Good as our Beech is it is too slow-growing to commend itself to the forester. The tree we wish to refer to here is the common European Beech (*Fagus sylvatica*, L.). This tree is one of the most important ingredients of European forests. Its wood is not of high technical value, yet is required for very numerous lesser purposes, especially for furniture, and it is a first-class fuel. Its chief interest to us is its use in forestry operations as a nurse to stimulate better trees to a more effective condition of growth, and its great value as a soil-producer. We occasionally see the copper-leaved variety of the common Beech growing in our gardens, but the normal green-leaved form we seldom see. This is strange, because all the other important English forest trees have been freely introduced. It is probably to be accounted for by the seed losing its germinative capacity on the voyage out. Seed of Beech if stored or packed in bulk without free access of air is liable to heat and to lose its vitality, also it resents drying beyond a certain degree. To transmit Beech seed it should be packed in dry sand, and forwarded with as little delay after it is ripe as can be managed.

What specimens we have had, though healthy enough, have grown with such slowness that they would not appeal to anyone as promising ingredients of a forest. But in Europe it is a tree of fairly rapid growth. Our specimens appear to have been stunted through exposure to too much light. It is essentially a shade-enduring tree, and it is this quality that makes it of so much value in forest operations. In order to bring light-demanding trees, such as Oak, Ash, Larch, to the highest technical condition it is necessary to thin out. Such thinning is certain to let light beyond the crown. If it reaches the soil injurious weeds make their appearance, and wherever it falls with sufficient strength on the previously protected trunks it is certain to stimulate dormant buds to activity, with the result that injurious branches make their appearance. In order to avoid these evils it is a common policy to plant Beech

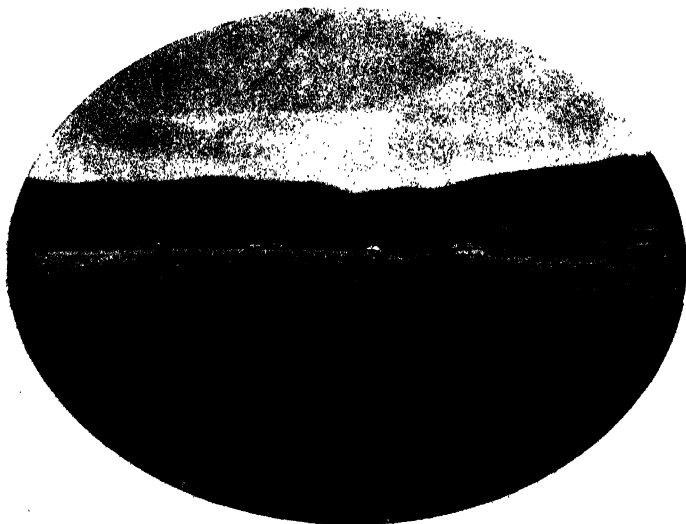


with the better class of such trees to act as nurses and induce an erect habit; also, where these light-demanding species have been planted in pure forests, and the time has arrived to thin them out, when they are so large that breaks in the canopy will be caused, it is generally a good principle to underplant with Beech so as to fill up these spaces.

The other use of this tree, namely, as a good soil-producer, is one that is unlikely to appeal to the individual, but should receive the earnest consideration of the Government. Where its other utilities recommend it this factor should be always a strong point in its favour. It sheds annually a heavy crop of leaves. These readily decompose, and are mixed with the mineral constituents of the soil, and as they are rich in lime and potash they assist in forming a rich humus soil. Beech leaves form the best of soil. Oak is very inferior, and our evergreen natives, particularly Eucalypts, produce soil very slowly. Some day--and the sooner the better--we must experiment in growing Gums under scientific conditions, and it will be a source of great instruction to observe the result of a Eucalypt plantation underplanted with Beech.

Beech will thrive on a soil containing a considerable amount of lime where many better timber trees will not live, and generally, though not always, it does poorly where the percentage of that substance is low. It does not do well on permanently moist land, and is quite unsuited for lowland tracts. Cool hillsides are best for it.

*(To be continued.)*



Apricot Orchard.

## DESTRUCTION OF FRUIT AND VEGETABLE PESTS.

By ALBERT H. BENSON, M.R.A.C., Director of Agriculture.

(Issued as a Bulletin by the Queensland Government.)

**I**N order to grow fruit or vegetables successfully—that is to say, profitably—it is essential that trees and plants be kept free from pests of all kinds, as no fruitgrower or gardener can grow fruit or vegetables and pests at one and the same time to advantage. This being so, the grower must know how to fight pests, and to do this economically and effectively he must know not only what pests he has to fight, but when and how to fight them.

This necessitates a careful study of the different pests, including a knowledge of their habits and life history.

This knowledge has been gained by years of careful study, undertaken by trained economic entomologists and pathologists in different parts of the world. The results of their investigations have been widely disseminated, and they form the basis on which the present methods employed for the destruction of pests are based.

The average fruit or vegetable grower cannot be expected to possess the highly technical knowledge of the trained investigator, nor is it necessary for him to do so, but everyone should endeavour to get a good general knowledge of the habits and life histories of the commoner pests he has to fight. Such a knowledge will frequently enable a grower to stamp out an insect or fungus pest before it has had time to do any serious damage, whereas the lack of such knowledge might easily result in serious loss, and would necessitate the expenditure of considerable time and money to get the trees or plants into a healthy condition. I purpose giving a rather fuller, but at the same time a simple, description of the pests that are most injurious, and of those that are most frequently met with, than I did in my previous writings, as I think such a description will be a help to growers, and will enable them to recognise a pest more readily when they come across it.

### PESTS.

The pests attacking fruit and fruit trees, as well as those attacking vegetables, are principally of two kinds—insect pests and minute forms of parasitical vegetable life that are usually either of a fungus or fungoid nature. There are also parasitical growths, such as mistletoe, moss, and lichens of various types, and diseases of a more obscure nature that are sometimes physiological and sometimes the result of bacterial agency. These different pests require different methods of treatment—for example, a treatment that proves highly efficacious in the case of a leaf-eating

caterpillar is seldom of much value for destroying an armoured scale insect, or for preventing the ravages caused by a fungus pest, such as the anthracnose or black spot of the grape. It will thus be seen that before one can hope to treat a pest successfully it is essential that you know what you are going to treat. There are no known general remedies which will successfully treat all kinds of pests any more than there are quack remedies that will cure all human ills, and the sooner that our growers realise this the better for them. First determine what your pest is, and then treat it in the manner that has been shown by experience to be most efficacious for the destruction of such pest. If at any time a grower is uncertain as to the nature of a pest, I strongly advise him to immediately submit a sample to the Entomologist of the Department of Agriculture and Stock, as by doing so he will be told exactly what he has to deal with and how best to treat it. This will save time, trouble, and expense, and will be much more satisfactory than experimenting on his own, and probably losing a crop in consequence.

#### *Insect Pests.*

As there are a large number of injurious insects to be dealt with, it is necessary to arrange them into classes according to the nature of the injury caused by them, as different classes of insects require different methods of treatment.

##### *(1) Insects Destroying Foliage or Eating the Skins of Fruit or Vegetables.*

A large number of insects of many different kinds do considerable damage to fruit trees, vines, or vegetables by actually eating the leaves, bark, or the skins of the fruit or vegetables. When present in large numbers they frequently defoliate the tree or plant, and thereby cause serious loss. The principal insects causing this damage are caterpillars of many kinds (the larvæ of many species of moths or butterflies). Beetles of many kinds often do serious damage both in the fully-matured or beetle state or in their larvæ or grub state. Crickets and grasshoppers of many kinds, both in their mature and immature state, slugs, snails, cut-worms, and other leaf-eating insects, also cause serious injury. Leaf-eating caterpillars are usually most destructive in the case of vines, sweet potatoes, cabbages, guavas, passionfruit, granadillas, and to a lesser extent citrus and other fruit trees.

*(To be continued.)*

When a frost occurs the cell moisture is withdrawn and frozen either outside the cell itself or on the surface of the leaf. If the thaw is slow the cell may regain its moisture, but if the sun dissolves the frozen water quicker than it can be absorbed the cell may become flaccid and die.

## SECOND EGG-LAYING COMPETITION.

THE following is the progress report for the eighth month of the egg-laying competition conducted at the Springvale Tea Gardens, New Town:—

	Month of Jan.	Total to date
1. Black Minorcas, C. W. Calver, Launceston ... ..	24	512
2. White Leghorns, O. H. Olson, Karoola ... ..	98	1006
3. Silver Wyandottes, W. T. Stephens, Beulah ... ..	62	882
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	74	838
5. White Wyandottes, A. G. Genders, Launceston ... ..	80	801
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	119	763
7. S.C. Brown Leghorns, East Launceston Poultry Yards, Launceston ... ..	46	806
8. White Leghorns, W. J. Camp, Wynyard ... ..	15	583
9. White Leghorns, G. Boatwright, Smithton ... ..	20	753
10. White Leghorns, Whiteway Bros., King's Meadows ...	16	499
11. Old English Game, J. Thorne, Waratah ... ..	52	616
12. White Leghorns, C. W. Calver, Launceston ... ..	50	875
13. R.C. Brown Leghorns, W. T. Stephens, Beulah ... ..	52	708
14. White Leghorns, C. R. Williams, Fingal ... ..	65	845
15. Black Orpingtons, H. R. Taylor, Launceston ... ..	77	743
16. White Wyandottes, A. G. Genders, Launceston ... ..	59	781
17. S.C. Brown Leghorns, F. Briggs & Son, Longford ...	28	783
18. White Leghorns, L. Dowling, Devonport ... ..	19	500
19. Silver Wyandottes, L. S. Hyland, Mt. Hicks ... ..	81	741
20. White Leghorns, O. H. Olson, Karoola ... ..	73	890
21. Black Orpingtons, Mrs. S. F. Clarke, Hobart ... ..	78	672
22. Buff Orpingtons, H. G. Spicer, Stanley ... ..	37	649
23. White Orpingtons, W. H. Hale, Strahan ... ..	67	732
24. White Leghorns, B. H. Whittle, Launceston ... ..	64	966
25. White Leghorns, F. A. W. Gisborne, Risdon-road ...	62	797
26. White Leghorns, Rust Bros., Claremont ... ..	56	817
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ...	89	967
28. White Leghorns, A. Sheriff, Hobart ... ..	57	818
29. White Leghorns, Mrs. Luke Williams, Moonah ... ..	65	837
30. Buff Leghorns, C. G. Gilham, Launceston ... ..	43	537
31. White Leghorns, W. G. Skidmore (Penville), Launceston	56	628
32. R.C. Brown Leghorns, F. Briggs & Son, Longford ...	76	848

Scrupulous cleanliness must always be observed in the dairy. The regrettable thing is that ideas as to cleanliness vary as widely as the poles are asunder.

Experiments in America have demonstrated that a wind-break, on level land, will be effective for a distance of at least ten times its height. For perfect protection, the trees in the wind-break must reach a height of at least 50 feet.

District conferences of Boards of Agriculture will be held during March at Latrobe (15th), Smithton (17th), Wynyard (18th), Ulverstone (20th), Sheffield (21st), Deloraine (22nd). Boards in the vicinity of these places are asked to appoint delegates.

## WEATHER AND CROPS.

**BEULAH.**—The recent heavy rains have retarded harvest operations, but hay-gathering is now in full swing. None of the crops promise to be up to the average. The oat crops, particularly Giants and Algerian, have not filled well, being blighted, whilst there is abundance of straw—some up to 8 feet high. The pea crop has not filled well—any amount of straw. Very little wheat grown here, but what there is will not yield over 15 bushels per acre. The potato crop is fairly good. Some of the early dug crops went up to 4 tons per acre, which at the price ruling was just about payable. Very little grass seed, owing in most cases to the ravages of the caterpillar. Some turnips have been sown, and these will benefit by the late rain.

**BUSHY PARK.**—January was an exceptionally dry month in this district; excepting for a shower of about 30 points on New Year's Day there was only one fall of 23 points all the month. This dry spell was good for the harvesting operations, which were pushed well forward. Threshing-machines are being kept busy, and yields are on the whole satisfactory, in spite of the ravages of the barley grub, which has attacked almost every crop in the district. The dry, still weather has also been good for the fruit and hops on the irrigated lands, as both these crops look much better than they did at the end of last month. Still, a good rain now would be very acceptable. The outlook is not too bright for the orchards that are not well supplied with water, and unless we get a good rain very soon the probability is that there will be a fair amount of small fruit.

**CRESSY.**—Up till the 5th instant the weather for harvesting was all that could be desired. There was light rain on the 5th (25 points), and on the 6th 7 points were registered. Wheat-cutting has been completed, and carting is general. Several farmers have finished threshing, the returns in some cases being 23 and 29, and in others as low as 5 to 10, bushels per acre. The general opinion is that the returns will be low all round owing to the damage caused by caterpillars and rust. The late sown wheat suffered considerably from rust, whilst the early sown wheat and oats were so badly damaged by caterpillars that in some instances they were not deemed worth cutting. Feed has been abundant, but is now becoming scarce. The supply of water in the creeks and rivers has been increased by the rain which has fallen on the hillsides. There are a number of farms to let round about Cressy at present, and it is anticipated that several will change hands by the 1st March.

**ELIZABETH TOWN, WHITEFOORD HILLS, DUNORLAN, ASHGROVE, AND PARKHAM.**—With few exceptions the crops are very promising in all these districts. As only a few farmers have started cutting operations, it is rather early yet to say what the returns per acre will be. Heavy rains fell at Elizabeth Town on February 5.

**EXTON.**—January was an exceptionally dry month, only 75 points of rain falling on three wet days. Consequently the crops have ripened very quickly, and harvesting is now in full swing. The climatic conditions—very heavy dews and foggy mornings—have unfortunately been favourable to rust. Most of the wheat crops are badly affected, and the sample of grain will not be good. Oats are also very rusty, but the grain is not affected so much as the wheat. Late oats are short, but well headed, and should yield well. Very little barley has been sown. The crops are now ripening, and should yield well. Potatoes: These look well, but could do with a good rain. There is no sign of disease yet. Rain is badly needed for fodder crops. On February 4 there was a fall of 50 points, which was hardly sufficient.

**KINDRED.**—On the 5th there was a good rain, which will do a great amount of good. Already the potato crops are making rapid growth. So far they seem to be very healthy, and give promise of a very good yield. The oat crops vary from good to very light. The average yield should be from 35 to 40 bushels per acre. White oats form the bulk of crops about here. Very little Algerian grown for threshing. Most of that grown is being cut for hay, which will average from 1½ to 2 tons per acre. There is a fair amount of rust in the oat crops, and it is affecting the yield a little. Wheat: The crops of wheat are only "middling," and will not yield more than about 20 bushels. Peas: There are a few peas grown; they will yield about 30 bushels per acre. Mangolds: Most farmers have a patch of these roots this year, and they are looking exceedingly well since the rain. On a good many farms there is a small patch of maize grown this season for autumn green-stuff, and it mostly looks well. One small patch has stalks in it between 5 and 6 feet high.

**RIANA.**—Harvesting operations have been somewhat retarded by the late rains. The grass paddocks are quickly responding to Sunday's (5th) copious rain by changing their yellow hue to a nice green, and dairymen have a further promise of succulent feed for their cows. The cream-carts still continue to carry away full loads to their respective creameries. Next year we are to have a factory in our midst, which will save the long cartage to Burnie. Messrs. Counsel, McHugh, Hynes, Mainwaring, and Smith, the gentlemen chosen to select the site for the factory, have fixed on a very central and handy place. A few of our farmers are potato-digging, and are obtaining fairly good results. The Government is busy pushing on the road-construction towards Loongana, and away in the bush can be heard the ring of the axe and the sound of the splitter's mallet—sounds which tell of new land being opened up and fresh homes being made.

**RIDGLEY.**—The weather during January was ideal, and those who commenced harvesting operations early had no trouble; but so far this month the atmospheric conditions have been anything but good, rain having fallen almost every day, making harvest work difficult. Through the wet spring all late oats have grown splendidly, and the crop in general is very good; given a change in the weather the returns from the thresher will be excellent. Many more acres of oats are grown now than was the case a few years back. White Giants, Sparrow-bill, and some Algerians constitute the cereals of this district. Wheat is rarely grown; there is one paddock this year, however, which looks fairly well. Most of the farmers are digging potatoes; some have even finished. Of course at this time of the year heavy crops are not found, one of the most promising crops in the district having been dug out before it matured. This sort of thing gives a poor average per acre, but fear of disease caused this early marketing. Spraying potatoes has not been resorted to in a business-like way, a few farmers having sprayed once only, which did not have any effect either way. Grass is plentiful, and the milk-yield has not commenced to diminish. Caterpillars have not appeared to any extent in the back districts, whilst the agricultural area has been singularly free from this most destructive pest.

**RINGAROOMA.**—The present season has been the wettest for some years, with the exception of a few weeks in the new year, when farmers were able to harvest a good portion of the crops satisfactorily. Crops on the whole are heavy, and the area will be found to be very large in almost every instance. The caterpillar has come and gone, but has not caused such great havoc as usual. A few weeks will bring harvesting to a close. I estimate the yields as follows:—Oats 60 bushels, hay 2 tons, and potatoes 6 tons to the acre. These are the principal crops grown in the district, with the exception of a limited area under turnips, barley, wheat, and mangolds. There is an abundance of grass for stock, which are doing well.

**STOODLEY.**—After a spell of warm weather rain commenced falling on the 11th instant, and continued heavily on the 12th instant. It was raining off and on all last week. Unless it soon ceases the hay and pea crops will be greatly damaged.

**UPPER FLOWERDALE.**—Potato-spraying has been carried out by most of the members. The crops appear likely to turn out well on the average. The acreage is about the same as last year. Wheat crops are all looking well; very little rust showing. The acreage under this crop is much greater than was the case last year. Oats: The crops on the average are good; early crops of Algerians very heavy. Acreage a little less than last year. Peas: Promised well, but have been attacked by what appears to be a fungus disease, and are very bad in parts. Early crops are the worst. Grass feed has not looked so good for years. Grass shut up for seed: This is exceptionally good, the caterpillars having done very little damage up to the present.

**WATTLE GROVE.**—The fruit is unusually large for this time of the year, and seems to be fairly good in quality. The weather has been dry and hot, with rain on the 9th.



Apple Picking.

## BOARDS OF AGRICULTURE.

The following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	G. Pratt	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Channel	W. Baldwin	Woodbridge
Cressy	James Anderson	Cressy
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
Elliott	L. H. Shepherd	Elliott
Fingal	F. M. Lattin	Fingal
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Glengarry	W. Wheldon	Glengarry
Harford	Geo. Sykes	Harford
Irish Town	E. L. Smith	Irish Town
Kimberley	H. Britton	Kimberley
Kettering	F. Hawkes	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
Leslie	R. C. Reid	Fern Tree
Lilydale		Lilydale
Lymington South	T. Burnaby	Lymington
Margate	C. E. Meredith	Margate
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marrawah	E. Bonhote	Marrawah
Montagu	R. Ennis	Montagu
Meander	H. Evans	Meander
Mt. Seymour	W. Wilson	Mt. Seymour
Mowbray	G. H. Boatwright	Smithton
Mooreville-road	J. M. Douglas	Burnie
New Ground	A. H. Douglas	Moriarty
New Norfolk	B. R. Reynolds	New Norfolk
North Motton	O. Waters	North Motton
Nook	M. McLunes	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgley	W. Morris	Ridgley
Scottsdale	F. F. Tucker	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
South Preston	R. G. Allison	South Preston
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carins	Myrtle Bank
Sprent	A. Lee	Sprent
Staverton	T. Wootton	Staverton
Stoodley	J. Leo	Stoodley
South Springfield	M. J. Cox	South Springfield
Table Cape	H. J. Smith	Wynyard
Ulverstone	H. A. Nichols	Ulverstone
Wattle Grove	K. Lord	Wattle Grove (Lower)
Wilmot	D. E. Forbes	Wilmot
Yolla	D. T. Jones	Yolla



**Carnarvon.**

**PRESENT.**—Messrs. Tanner (Chairman), G. Eldridge, J. McArthur, W. R. McGinniss, G. Wellard, J. A. McGinniss, R. J. Stacey, D. Blackwood (Hon. Secretary), and one visitor.

**EXPERIMENTAL FARM.**—The following resolution was passed:—"That this Board is in favour of an agricultural and experimental farm being established in a central locality, but is of opinion that the classes by experts should not be abolished."

**LECTURES.**—The Poultry Expert gave a lecture on poultry on the 18th, and considering the short notice given, the attendance (over 30) was very good. The lecturer, who had his audience with him all the time, was listened to attentively, and at the close all questions (which were mainly on feeding) addressed to him were satisfactorily answered. On the 19th the expert lectured on the pig and bacon industry, the attendance being somewhat smaller than that of the previous evening. In the course of his remarks Mr. Terry admitted having seen better pigs in the district than he had anticipated. The expert quite satisfied his audience that there was no need for the press comments on his credentials for the position of Pig Expert. After the lecture several questions (mainly on curing) were satisfactorily answered by Mr. Terry, who at the close of the meeting was accorded a hearty vote of thanks for his interesting and instructive address.

**Kindred, January 16.**

A meeting was held on the above date. Considering it was harvest time there was a fair attendance.

**EXPERIMENTAL FARM.**—A long discussion took place on the proposal of the Government to establish a State agricultural farm and school, and the following resolution, moved by Mr. D. G. Cowle, was carried:—"That this Board is opposed to the proposal; also that the members of this Board are of opinion that if the Government should proceed with the proposal to establish this farm it should be on Crown land, so that students should be taught all classes of work, from the felling of scrub until the land is fit for cultivation."

**DISTRICT CONFERENCE.**—Mr. A. R. Polden moved the following resolution, which was carried:—"That in the event of a conference of Boards of Agriculture being held at Ulverstone, the Secretary represent the Kindred Board; also that members are of opinion that the best time to hold a conference would be towards the end of March, as by that time all harvesting operations will have been completed."

**SEED POTATOES.**—A discussion also took place as to the best way to cut and treat potatoes for seed. Some members believe in keeping the seed potatoes outside all the winter and then cutting them into fair-sized sets, with, say, two eyes to each set; the tubers to be planted immediately after being cut. Others prefer to keep the seed in a well-aired shed, and to treat the sets with lime and plant when well dried. All present were of opinion that it pays to plant a fair-sized set.

**Mooreville Road, January 23.**

**PRESENT.**—Messrs. W. Spinks (Chairman), T. Redman, A. J. Redman, J. Connolly, T. Atkinson, A. Pease, R. Hilder, R. Laird, and J. M. Douglas (Hon. Secretary).

**CORRESPONDENCE.**—A letter was read from the Director *re* Californian thistle, in which it was pointed out that the Act requires owners to prevent it from blooming, and thus spreading from farm to farm. It was decided to take an active part in preventing the increase of the thistle in this district.

**DISTRICT CONFERENCE.**—A circular was read from the Director of Agriculture suggesting a district conference of Boards of Agriculture, with a view

to discussing what experiments can be started in this district. The following resolution, moved by Mr. Hilder, was carried:—"That this Board fall in with the suggestion that a conference be held in March, and that a delegate be appointed to represent the Board."

**STATE AGRICULTURAL FARM AND SCHOOL.**—A circular *re* above was read, and after a little discussion was held over until next meeting.

#### Mowbray, January 20.

**PRESENT.**—Messrs. S. Moore (chair), J. W. C. Hamilton, W. Geale, J. Morton, C. Butterworth, D. Tait, J. Zimmerman, A. H. Heathorn, W. Fixter, W. Howard, Thos. Wilkins, and G. H. Boatwright (Hon. Secretary).

**ELECTION OF OFFICERS.**—The following officers were elected for the ensuing year:—Chairman, Mr. S. Moore; Hon. Secretary, Mr. G. H. Boatwright.

**MEETINGS.**—On the motion of Mr. Hamilton it was decided that the Board meet monthly, on the Wednesday night nearest the full moon. Mr. Morton generously granted the use of the meeting-room free of charge.

**CONFERENCE.**—The following resolution, moved by Mr. Hamilton, was carried:—"That the Secretary write to the respective secretaries in the Circular Head Municipality, to arrange if possible for the various Farmers' Clubs to meet the Director of Agriculture at a conference on a date to be fixed."

**RAIN-GAUGE.**—On the motion of Mr. Morton the Secretary was instructed to write for a rain-gauge, and to ask Mr. Howard (the State school teacher) if he would take charge of same.

**BEES.**—Mr. Heathorn moved the following resolution, which was carried:—"That the Secretary write to the Department, asking for a supply of bumble or humble bees for distribution in this district."

**PAPER.**—On the motion of Mr. Geale it was decided that Mr. Heathorn be asked to prepare a paper on "Land Settlement," to be read at next meeting.

#### Queenborough, January 30.

**PRESENT.**—Messrs. L. Rodway (Chairman), R. Manton, T. Trowbridge, J. Osborne, Jun., and W. H. Connor (Hon. Secretary). Mr. L. A. Evans was also present. Apologies were received from Messrs. G. Rowntree and R. A. Salter.

**CORRESPONDENCE.**—Letters from the Director of Agriculture, dated December 8, 15, and 17, were read.

**STATE AGRICULTURAL FARM AND SCHOOL.**—A very interesting discussion took place on the above subject, and it was decided to request the Chairman to publish his remarks thereon in the "Agricultural Gazette" (see page 55).

#### Ridgley, January 25.

**PRESENT.**—Messrs. J. F. Crawford (Chairman), J. Matthews, J. McDonald, R. Hilder, W. Burley, and W. Morris (Hon. Secretary).

**POTATOES.**—The best method of cutting potatoes for seed was discussed with much interest and at some length. Members considered that this department of farm work did not receive enough attention, and that careless and small cutting of seed was responsible for many of the "misses" seen in potato crops. Attention was drawn to the fact that much depended upon circumstances (class of land, &c.). It was thought advisable to plant round seed on new or strong turf land, as it was not so liable to miss, and the tubers dug would not be too large and hollow. It was pointed out that round seed had more eyes; consequently more shoots were sent up, and a greater number of potatoes were produced under the plant. Such being the case, strong land is needed to make the tubers grow fit for the market. On the other hand, when cut seed was sown fewer potatoes were found under

the plant; usually large and hollow tubers were the result. For general use a medium-sized potato, one that would make two sets, was favoured. Members were of the opinion that farmers had been too careless with the potato crop in the past. It now behoved everyone to be very particular in this respect.

CONFERENCE.—The Hon. Secretary (Mr. W. Morris) was chosen as delegate to attend the district conference to be held at Wynyard on March 18.

STATE AGRICULTURAL FARM. The outline of the State agricultural school proposal was read by the Secretary. The meeting considered that this was a step in the right direction, and members expressed pleasure at the progress made by Mr. Benson in this connection. The amount of expenditure quoted was considered very reasonable. Members were unanimous in the opinion that the school should, if possible, be made to pay its way, and should be worked in a plain, thorough manner. It was considered that all experiments should be carried out on practical lines, so that they might be more readily imitated by farmers. Garden experiments are sometimes out of the question when tried behind the plough.

GRASS.—A small packet of grass seed (*Phalaris commutata*) was distributed among members, who evinced much interest in it. A small plot of this grass is being grown in this district with good results.

### Ringarooma, January 29.

A special meeting was held on the above date.

PRESENT.—Messrs. W. H. Phillips (Chairman), W. Freeman, R. Thompson, A. H. Edwards, and L. J. Collins (Hon. Secretary).

THE POTATO INDUSTRY.—After the confirmation of the minutes, it was resolved, on the motion of Mr. Edwards, "That the Secretary write to the Department requesting that an expert visit the district to report on the potato question and advise the Board *re* same."

### St. Patrick's River and Myrtle Bank, November, 1910, and January, 1911.

November, 1910.

PRESENT.—Messrs. Rowland Skemp (Vice-Chairman), Sam. Skemp, S. T. Whiting, — Freiboth, A. Alexander, Alf. Dean, Roy Tole, William Imlach, and W. A. Carins (Hon. Secretary).

CONTINUOUS MILK RECORDS AND TESTING.—The subject was introduced by Mr. R. Skemp, and caused a long debate. Some members were adverse to the trouble and time such a method would entail in addition to the pressure of the ordinary work on bush farms. Some thought a prize should be offered. The Secretary thought if a prize was offered a man would pick his best cows, but the object was to help a man to pick out his worst cows and get rid of them—grading up his herd was the best possible prize the proposal could give him, coupled with the pride of possibly possessing the best herd of cows in the district. A letter was read from Mr. Cox, manager of the Myrtle Grove Dairy Farm (Springfield), enclosing a blank chart, and offering to help the Board as far as possible. The Secretary was instructed to thank him for his kindness. It was finally resolved that such members as were disposed should keep a record to the end of the year, and have the use of the Board's Babcock tester. It was resolved to hold the annual home milking competition on same lines as those of the Launceston show.

EGG-LAYING COMPETITION.—Pamphlets by Mr. Terry were distributed.

STATE FARM AND SCHOOL.—The Board carefully considered the circular *re* agricultural farm, and in general approved of the plan, but felt unable to criticise the scheme in detail. The members, however, were of opinion that with experience of its working fresh openings for experiments will arise, as

farmers meet with other difficulties than those which have lately confronted them, while a practical illustration of advanced methods of farming practice must be useful. The Board wished the undertaking every success.

**DAIRY COWS.**—The Secretary was asked to correct his report of the previous meeting—the members preferred the Ayrshire-Shorthorn cross, not the Jersey-Shorthorn.

*January, 1911.*

**PRESENT.**—Messrs. J. M. Peck (Chairman), W. Richards, R. Skemp, S. Skemp, T. Teece, — Freiboth, A. Alexander, Alf. Dean, Roy Tole, Vernon Tole, Claude Faulkner, and W. A. Carins (Hon. Secretary).

**ST. PATRICK'S RIVER HALL.**—On the motion of Mr. Samson Teece it was decided that the Secretary ask the hall committee to start the extension of the hall without delay, so as to be ready for the produce show in March.

**PRODUCE SHOW.**—The Board then took the schedule into consideration, which occupied the remainder of the evening.

### Stoodley.

**PRESENT.**—Messrs. W. Bannon (Chairman), T. Tyler, A. Tucker, T. Shaw, G. Nolan, J. Leo (Hon. Secretary), and several visitors.

**BUSINESS.**—Several matters occupied the attention of members, notably the proposed agricultural farm. The project was freely discussed, and ultimately left for further criticism until the next meeting. The best method of cutting seed potatoes was similarly dealt with. The attention of those present was then drawn to the necessity of co-operating with other Agricultural Clubs in trying to induce the Minister to bring forward a test case in the Federal High Court should the West Australian Government persist in shutting out Tasmanian potatoes. The necessity for a more stringent inspection at the shipping port was the topic that concluded the business of the evening.

### Upper Flowerdale, January 7 and 28.

*January 7.*

**PRESENT.**—Messrs. S. P. Rielly (Chairman), V. Smith, W. A. Stuart, H. Bramich, H. Mezger, J. Watts, W. Stuart, and J. A. Smith (Hon. Secretary).

**CORRESPONDENCE.**—A letter was read from the Director asking for revised list of members. This was postponed till next meeting, all those present intimating their intention of continuing as members. A letter was also read from the Director acknowledging receipt of Secretary's report, and stating that the suggestions contained in it would receive consideration.

**ROADS V. TRAMS.**—The following paper was read by Mr. S. P. Rielly, in reply to one by Mr. Horton on the same subject:—"I now wish to touch on this question from the opposite, or road, side. [Mr. Horton's paper was in favour of tramways, as opposed to roads, for opening up the back country.] There is no doubt that the subject of opening up the back country is of vital importance to the State, and I maintain that a system of road-construction is the only effective means of attaining this end. We have abundant evidence of the value of a metal road in this district. Take, for instance, any portion of the Coast-road. Before this road was made the land was practically worthless, and yet to-day it is worth anything from 25 to 30 times as much as when selected. This has been caused entirely by roads, and not by trams, which are at present not even in the experimental stage. Trams as a substitute for roads in opening up the back country will, I am convinced, only end in failure, and for these reasons. Firstly, we want the man on the land, and the only way to get people to go on the land is to give them roads, in order that they can get to and from it. The land at the back will not be fit for cropping for from 10 to 15 years from the time it is selected, and until

it is ready there will be comparatively no work for trams; but occupation with grazing or dairying can be commenced as soon as a portion of the land is scrubbed and grassed, and given a metal road this would immediately be done, as has been proved before. What has given such an impetus to the Mt. Hicks district? Why, nothing but the pushing ahead of the metal road beyond the then limits of settlement, which quickly followed. In the early years of a man's occupation of the land dairying is by far the best way to make a success of his work, and in order to do this he must have a metal road—not a mere track—to enable him to get access to markets for his produce. No one can expect a man to make a home where for perhaps six months out of the 12 he cannot get out; but give him a road, and I maintain that all the land at the back of this district will be very quickly settled upon. The Government say that they want to encourage settlement on the land, and various means of doing so have been suggested, amongst them being that the Government should scrub and grass a portion of a selection, and build a house for the selector, loading the land with the cost. But this without roads would be practically worthless. If we could only impress upon the Government the fact that all they need to do to encourage settlement is to provide a metal road! The settler will very quickly do the rest for himself. One very great argument against a system of trams as against roads is that in all back country there is actually no work for trams to do. It has been said that the timber on the land would be utilised for sawmilling purposes if a tram were laid down, but—at any rate in the case of this district—the greater proportion of the back land is myrtle country, and not one tree in a hundred in a belt of this timber would be worth trucking out for milling purposes. Another reason why roads are essential, and trams without roads are not, is that the land when first grassed, and for some years afterwards, can only be used by two classes of people—first, the big grazier, who somehow or other gets hold of large areas for running cattle. This man does not want a tram; he drives his stock to and from the run, and there is an end of it. The other man, and the one who should have every encouragement given him, is the small grazier who grazes for dairying purposes. This man has no use for a tram, but does need roads to get his cream or dairy produce out to markets. One important point that is often lost sight of in advocating a system of trams is this: What kind of haulage power is proposed to be used—steam or horse? Who would have the control of it—the local municipal body, the State Government, or is the farmer himself to do his own hauling? This last is an impossibility, for it would only end in confusion. Lastly, who would pay the cost of haulage? There are endless reasons why trams instead of roads would make the country impossible to live in. They would make it impossible to send out children to school. We could not get from one farm to another with any machinery—chaffcutters, binders, &c. There would be no social intercourse, and all the various purposes for which roads are used would have to be abandoned, and each farmer isolated for all practical purposes. It is a well known fact that even now people will not settle on the land to any great extent because of the want of easy access, but crowd into the towns and cities, where greater facilities are offered for communication. What would it be if there were no prospect of roads being eventually opened up, and we had to fall back on a tram system that would never serve one-thousandth part of the purposes that a metal road fulfils? Leaving this question of roads for a moment, I would like to make a suggestion on the mode of paying the instalments for the land. I should like to see a *bona fide* selector enabled in case of necessity to get into arrears with his payments as much as seven years, provided that he kept the interest regularly paid up, and at the end of his term—14 years, or whatever the term may be—go on paying up his instalments in the order in which they should have been due

in the ordinary course of payment. For example, a man pays for three years, and then finds a hardship in meeting the next. This should then go to his debit, and for the next year he should only be expected to find the interest on this, and so on. But he should have the right to pay off all or any portion of his arrears at any time that he could do so—not, as at present, be compelled at the end of, I believe, two years' arrears to pay up in a lump sum or lose his land. With regard to "The Loans to Settlers Act," I consider that it cannot be made too liberal to the *bona fide* selector, and by this term I mean a man who resides on his land. To a non-resident I would advance up to 30 per cent. on his improvements, and no more. For this reason a man who has not made his home on the land has not the same inducement to strive to meet his payments, and might forfeit his holding, thus throwing it back on the Government loaded with the advance, and should this land remain for any length of time unoccupied it would be decreasing in value, and the Government would possibly lose on the transaction. To the man who builds his home and resides on his selection I would strongly suggest that the loan be made even up to 80 or 90 per cent. of his improvements. But this should only be advanced after the house is actually built and resided in; and for this reason any sawmiller would be willing to let a man have the timber, and any builder would put up a house, if he knew that when finished the Government would advance the greater proportion of the cost; and the man having his home would be sure to strive to keep it, so that the risk to the Government would be a very small one. A system of this kind would have far more beneficial results than a system of scrubbing and building before selection, and this brings us back to the main question of this paper. All the help that the Government is willing to give to the selector, to be of any real benefit to him, depends entirely upon his having a road, in order that the results of his work may reach the outside markets; and I would suggest that the Government construct roads wherever required, and create a sinking fund of 1 per cent. to be charged against all land benefiting by this road. In this paper I do not wish it to be thought that I am opposed to a tram system in its proper place, and built in its proper time. To build a tram-line before a road is like buying harness before you have a horse. There is no doubt whatever that when our back lands are fitted for cultivation, and are so used instead of exclusively for grazing, trams will be a necessity for hauling the heavy produce for long distances at a cheap rate; and when that arrives they should be built under local liability." Mr. A. W. Stuart suggested that the clause in the paper referring to interest being regularly paid be amended by the addition of the words "and improvements strictly performed." A hearty vote of thanks was accorded Mr. S. P. Rielly for the paper, and for the able manner in which he had handled his subject.

**TITLE OF BOARD.**—It was decided that the Secretary should write to the Director for permission to change the name from Farmers' Club to "Board of Agriculture."

**SUBSCRIPTION.**—On the motion of Mr. S. P. Rielly it was resolved that any member whose subscription is six months in arrears should be given one month in which to pay the amount due. It was also resolved that it be a recommendation to the Director that the "Gazette" be withheld from any member who fails to pay within the prescribed time.

January 28.

**PRESENT.**—Messrs. S. P. Rielly (Chairman), C. Tucker, H. Mezger, W. Scott, T. Stuart, V. Smith, E. J. Reeve, T. W. Reeve, J. Watts, H. Bramich, W. Hope, H. W. Whaley, and J. A. Smith (Hon. Secretary).

**SEED POTATOES.**—A long discussion took place on this subject, the general opinion being that the best method was to use seed that only required split-

ting in halves for main crop (October) sowing, or, in the event of larger seed, using potatoes that will make three sets. Larger sizes, it was considered, were more liable to miss. For early sowing carefully selected round seed gave the best results. A discussion also took place on the best method of keeping potatoes for seed. Mr. S. P. Rielly said that the best way was to have a shell with a batten floor, the battens about 1 inch apart, and batten shelves, the potatoes to be spread on the shelves about 6 inches deep. Mr. H. Whiley said he kept his seed in his chaff-house; he did not believe in allowing water to go through them. Mr. E. J. Reeve, on the other hand, considered that potatoes are all the better for the rain going through them. Mr. J. Watts believed in keeping the seed as dry as possible. The general opinion appeared to be that potatoes spread out thinly about 6 or 8 inches deep in a dry shed, where plenty of air can get through them, keep the best, and give the best results in the following season.

**"THE GAME ACT" AND STOCK-BRANDING.**—A copy of a Bill to amend "The Game Protection Act" was received; also one to provide for the registration of brands on stock. The latter, relating as it did to a subject of great interest in this district, was read and partly discussed. Clause 23, which provides for only one brand for cattle, no distinctive brand such as ear-marking being allowed, was considered by those running stock on back runs to be open to improvement. In rounding-up cattle on these runs it is often very difficult to distinguish fire brands, and owners generally looked for earmarks, they being more easily seen. It was therefore suggested that earmarks should be allowed in addition to the registered fire brand. The size of the brand prescribed by Clause 24 was considered to be too large, 2 inches in length being thought quite enough. Members were also of opinion that conjoined letters making a distinct brand, such as HB, J, &c., should be allowed as a registered brand; also that calves under six months old should be exempt. The further consideration of the Bill was postponed.

**LONG HILL (HAINES').**—Mr. V. Smith moved the following resolution, which was carried:—"That in the opinion of this meeting it is desirable that the money available for the deviation at Haines' Hill be spent on the route through Haines' and Norton-Smith's, as recommended by Mr. Paton. Mr. V. Smith having moved that this resolution be forwarded to the Minister of Lands, Mr. A. W. Stuart proposed as an amendment that the consent of the executors of the estate be first obtained to ratify the verbal offer of the land by the late Mr. Norton-Smith, and in the event of such consent being obtained, in writing, that the first resolution be immediately forwarded to the Minister of Lands, together with such consent. The amendment was carried, and the following were chosen as a committee to interview the executors:—Messrs. S. P. Rielly, J. Tucker, and J. Watts.

### Wattle Grove, February 7.

**PRESENT.**—Messrs. E. Baldwin (Chairman), W. A. Schultz, T. K. Wilson, A. S. Atkins, G. Wilson, H. Smith, W. A. Philp, H. Batge, A. Schultz. K. Lord (Hon. Secretary), and two visitors.

**AGRICULTURAL FARM.**—The Chairman read a circular from the Director re agricultural farm and school, on which a long discussion took place, it being decided that this Board is in favour of the scheme.

**PICNIC.**—The picnic was postponed owing to the apple season being so near at hand.

**PAPERS.**—The papers to be read by Messrs. Hirst and Jones were held over till next meeting.

## METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING JANUARY, 1911 AND 1910.

Station.	1911.	Wet Days.	1910.	Average.
Marrawah .....	—	—	138	122
Cape Grim .....	—	—	150	187
Sunny Hills .....	57	3	201	—
Irish Town .....	113	9	229	—
Black River .....	—	—	285	204
Stanley .....	—	—	224	171
Flowerdale .....	51	3	261	—
Flowerdale, Upper .....	—	—	271	358
Yolla .....	—	—	511	245
Wynyard .....	37	5	280	—
Burnie .....	112	6	367	230
Ridgley .....	90	6	327	—
Ulverstone .....	67	5	398	197
Kindred .....	90	7	317	—
Devonport .....	65	7	268	215
Latrobe .....	—	—	257	194
Northdown .....	—	—	274	210
Beaconsfield .....	99	5	365	—
Low Head .....	—	—	139	176
Black Bluff .....	—	—	222	—
Moina .....	294	12	—	—
Gunn's Plains .....	—	—	363	297
Central Castra .....	—	—	425	313
Wilnot .....	187	6	328	—
Gawler .....	—	—	311	295
Sheffield .....	241	3	489	—
Deloraine .....	—	—	298	232
Cavceside .....	133	5	440	—
Cressy .....	9	5	151	183
Longford .....	29	4	285	194
Evandale .....	—	—	150	—
Westbury .....	71	4	247	220
Westbury State School .....	—	—	247	—
Carrick .....	39	5	238	—
Launceston .....	—	—	172	207
Glengarry .....	74	5	341	263
Frankford .....	101	5	565	268
Exeter .....	58	4	271	—
Lilydale .....	—	—	132	183
St. Patrick's River .....	205	5	—	—
Springfield .....	119	7	170	187
Springfield South .....	199	4	129	—
Scottsdale .....	120	7	193	267
Braxholm .....	—	—	153	—
Ringarooma .....	133	5	152	294

WEST COAST MOUNTAIN  
REGION.

Whale's Head .....	—	—	115	—
Mt. Balfour .....	156	—	160	—
Magnet .....	*225	—	206	—
Waratah .....	*270	—	201	459
Que .....	173	7	—	—
Guildford .....	—	—	207	—

\*Telegraphic reports only.



## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Tullah ... ..	—	—	152	—
Mt. Read... ..	286	11	226	586
Dundas ... ..	310	10	—	—
Zeehan ... ..	—	—	227	601
Mt. Lyell... ..	387	11	200	784
Queenstown ... ..	287	10	149	—
Strahan ... ..	—	—	—	203
Cape Sorell ... ..	—	—	159	312
Pillinger ... ..	—	—	202	—

## CENTRAL PLATEAU.

Great Lake ... ..	—	—	95	216
McGuire's Marsh ... ..	—	—	—	—
Woods' Quoin ... ..	—	—	—	—
Interlaken ... ..	—	—	233	288
Dog's Head ... ..	—	—	—	—

## DERWENT \ ALLEY.

Glennmark ... ..	—	—	225	—
Bashan ... ..	—	—	260	284
Osterley ... ..	—	—	—	263
Bothwell ... ..	52	3	312	224
Hamilton ... ..	56	2	151	201
Ellendale ... ..	172	7	197	293
Glenora ... ..	53	3	99	198
Belmont ... ..	—	—	77	176
Clarendon ... ..	25	2	89	195
New Norfolk ... ..	—	—	143	208
Uxbridge ... ..	134	6	138	259
Lachlan ... ..	—	—	146	231

## SOUTH-EASTERN.

South Bruni ... ..	99	7	309	272
Adventure Bay... ..	104	7	—	—
Southport ... ..	*103	—	399	295
Lunawanna ... ..	87	4	211	—
Port Esperance... ..	—	—	343	263
Port Cygnet ... ..	*214	—	250	—
Petchey's Bay ... ..	98	8	204	—
Middleton, Channel ... ..	—	—	237	—
Kettering ... ..	138	9	357	—
Franklin ... ..	145	5	—	284
Kingston ... ..	82	8	—	—
Mt. Nelson ... ..	77	6	423	234
Mt. Wellington (Gap)... ..	170	12	486	—
The Springs ... ..	—	—	559	501
Hobart Observatory ... ..	—	—	234	185
Hobart Botanical Gardens	—	—	221	221
Hobart Waterworks ... ..	100	7	377	307
Glenorchy ... ..	*60	—	175	229
New Town ... ..	—	—	—	263
Bellerive ... ..	28	5	244	249
Lindisfarne ... ..	30	5	235	—
Rokeby ... ..	*11	—	320	263
Sandford ... ..	36	4	243	212
Premaydena ... ..	—	—	102	161
Carnarvon ... ..	95	10	319	278
Sorell ... ..	24	6	222	219

\*Telegraphic reports only.

## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Cambridge ... ..	—	—	190	200
Craigow ... ..	—	—	248	—
Richmond ... ..	31	5	211	228
Brighton ... ..	*21	—	186	229
Tea Tree ... ..	18	2	218	—
Bagdad ... ..	—	—	416	254
Broadmarsh ... ..	—	—	213	—
Kempton ... ..	—	—	254	209
<b>MIDLAND.</b>				
Spring Hill ... ..	43	6	205	234
Jericho ... ..	4	3	187	—
Mt. Seymour ... ..	50	7	246	203
Oatlands ... ..	—	—	285	231
Andover ... ..	—	—	214	275
Woodbury ... ..	9	1	180	—
Beaufront (Ross) ... ..	—	—	237	202
Bendemeer ... ..	2	1	222	267
Glen Connell ... ..	3	1	390	277
Campbell Town... ..	3	1	213	221
Hanleth ... ..	—	—	119	177
<b>EAST COAST.</b>				
Kellevie ... ..	44	6	311	—
Buckland... ..	30	5	240	—
Triabunna ... ..	18	3	174	283
Swansea ... ..	—	—	185	253
Riversdale ... ..	—	—	224	282
Cranbrook ... ..	—	—	232	279
Lake Leake ... ..	—	—	275	273
Ormley ... ..	65	4	80	20
Fingal... ..	—	—	174	204
Cullenswood ... ..	37	2	237	222
St. Marys ... ..	67	4	252	236
Tower Hill ... ..	—	—	192	—
Mathinna ... ..	39	4	184	211
Scamander ... ..	*48	—	190	288
St. Helens ... ..	—	—	239	267
Gould's Country ... ..	60	4	273	364
Lottah ... ..	117	11	306	447
Poimena ... ..	—	—	330	560
Eddystone Point ... ..	—	—	321	—
Boobyalla... ..	126	6	70	146
<b>KING ISLAND.</b>				
Cape Wickham ... ..	15	4	174	118
Yambacoona... ..	8	1	194	132
Currie Harbour ... ..	24	6	94	—
Monk Breton ... ..	26	5	162	—
Surprise Bay ... ..	35	5	154	—
<b>OTHER ISLANDS.</b>				
Kent Group ... ..	—	—	230	172
Flinders Is. (Thule) ... ..	—	—	191	201
Goose Island ... ..	—	—	80	130
Cape Barren Island ... ..	—	—	123	—
Swan Island ... ..	—	—	81	157
Maatsuyker Island ... ..	140	9	231	256

\*Telegraphic reports only.

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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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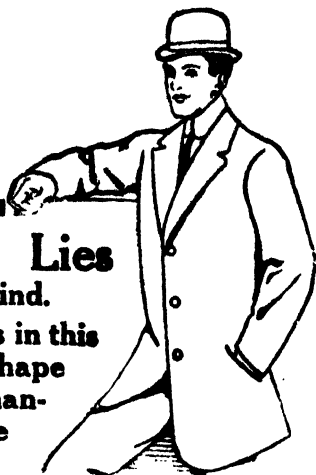
## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

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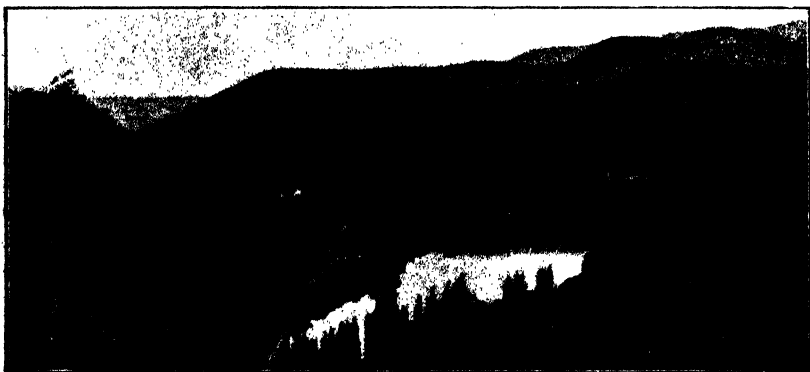
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THE JOURNAL OF THE AGRICULTURAL DEPARTMENT,  
TASMANIA.

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VOL. XIX., No. 3.

MARCH, 1911.

PRICE  
THREEPENCE

## THE FERTILE VALLEY OF THE HUON.

**T**ASMANIANS, generally speaking, known very little of the importance and prosperity of the many places which lie other than between the southern and northern capitals.

How many of our readers living west of Deloraine could give any information, or, to draw the limit of comparison to its uttermost, know even of the existence of Judbury and what is to be called Glen Huon. On the other hand, how many living at these centres are aware of Beulah, Stoodley, &c. To the average resident in the Huon, the north-western area of this comparatively small State is away beyond the limit of his horizon, and a dweller in the region of Wynyard once said that he had taken a trip to the south when he had only gone to Derby.

There are in nearly all parts of Tasmania areas springing into prominence which only a few decades ago were not on the map except as virgin forest. Now the eucalypti have disappeared, and been replaced by orchards and farms of great value.

It is generally held that between 200 and 300 bushels of apples is the average yield per acre taken over a period of years, but in this vicinity some growers state they have for years gathered over 700 bushels of apples; and trees (Mobs Codling) this season have given 27, 30, and 36 bushels per tree.

On a brightly-beautiful morning last month the writer drove out to Glen Huon, and in the afternoon to Judbury. These districts are fast making great additions to the wealth earned from the soil in this State.



There is, however, a still greater advancement to be made when encouragement is given settlers to fully extend themselves in the Russell, Weld, and Denison valleys, where thousands of acres are available for fruit-growing and mixed farming.

The sight of a locomotive leaving Huonville and running along the right bank of the Huon River, crossing to the left bank near the picturesque and fertile farm and orchard owned by Mr. W. Calvert, and extending beyond Judbury into the vicinity of the valleys mentioned above, would unquestionably give an immense fillip to settlement in that part of this beautiful island.

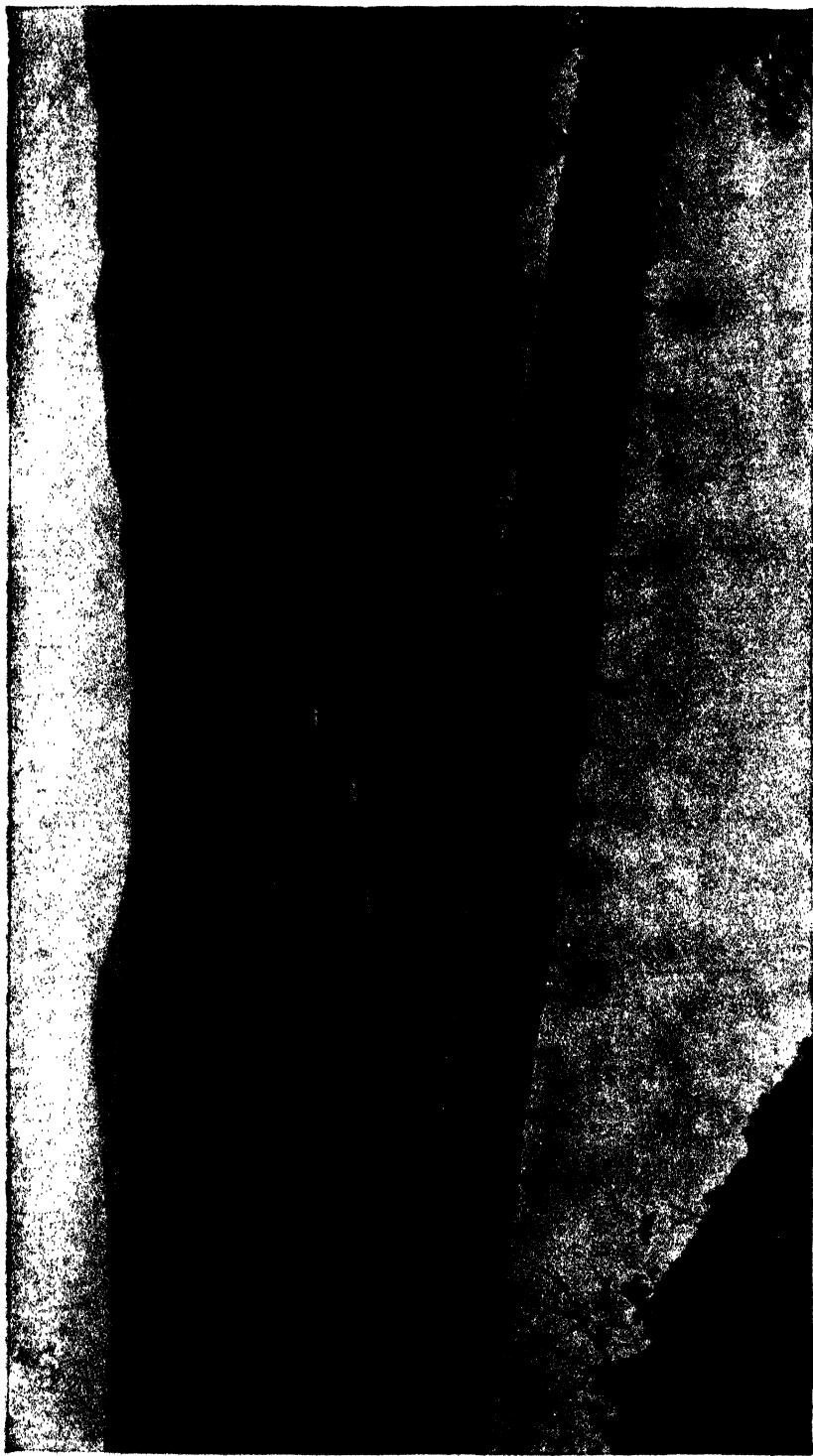
When the Huon valley receives that appreciation which it justly deserves, thousands of acres of at present unused land will fall into line with more favoured situations, and this State be the gainer thereby.

The conservatism with which the Department was faced on the appointment of the Fruit Expert is gradually disappearing, and there is an evident desire amongst orchardists in many centres to make a more systematic attempt than has been the case in the past to bring into operation the fundamental laws underlying fruit-production.

Yet, on the other hand, there are not wanting instances around Huonville and Franklin where acres of orchard property have not been given proper treatment, and the trees are not fruiting, but apparently reveling in the production of tons and tons of firewood. Be this as it may, the neatness of the orchards and the general appearance of prosperity which mantles the homesteads, together with the picturesqueness of the upper reaches of the Huon, places this portion of Tasmania in the same category as the classical Derwent and the rapidly advancing northern estuary.

Travelling from one end of the island to the other enables comparisons to be made, and whilst one notes with pleasure the fruitfulness of the orchards in the Huon, yet, on the other hand, it is quite clear that, profiting by the mistakes made in the South, Northern planters will, unless the marked conservatism is thrown off, rapidly outdistance the bulk of our Huon friends in respect to growing fruit on up-to-date lines, and just as a leading American authority stated that "the fine art of modern agriculture is as much above the uneducated and untrained man as sculpture is beyond the ordinary quarryman," so the proper treatment of orchard land is in marked contrast to sticking in apple trees and leaving them to grow untrained, or at the most snipping the tops off, just as one would restrain the vigour of a pittosporum hedge.

Fruitgrowers, considering the enormous production of apples last year, have no ground for complaint as regards the return this season. Whilst there is in most cases a medium crop, the fruit, although immature when seen towards the end of February, promised to develop into a good sample, and colour well. The natural result of a smaller production would enable the tree to do full justice to the maturation processes, and provide marketable fruit of a high grade.



The Huon at Ranelagh.

Black spot, the Huon orchardists' greatest foe after the mussel scale, is in evidence to some extent this year. In periods of frequent precipitation of moisture such as occurred last spring, the prospect of fungi making headway is good; but there appeared to be no justification for the rumours current recently that whole areas had been devastated. Unlike our potato friends on the North-West Coast, the Huon grower has long recognised that successful fruit-culture can only go hand in hand with, amongst other things, the regular employment of the spray pump.

The non-producing qualities of a large number of trees in several orchards was clearly to be ascribed to neglect, both in respect to warding off the attacks of mussel scale, as referred to above, and the practice of allowing the tree to shape its own destiny.

With the progress of the industry (and the development has been great during the last decade), the land has been denuded of timber, and settlers are beginning to realise that they must go further afield for fuel supplies.

Prices of land near townships seem to be very heavy, and yet changes of ownership do occur. Up to £100 per acre has in one or two instances been refused for land in its natural condition, and which would cost between £20 and £30 per acre to clear, grub, plant, and fence. The owner would then be faced with a period of five or six years to wait for a probable return from the trees, unless the practice of growing root-crops between the rows was resorted to.

Blocks of land littered with heavy timber (mainly stringy-bark) could be seen being gradually brought into a condition fit for the plough and subsequent planting, and it would be well to advise intending orchardists at a distance that fruitgrowing, whilst remunerative when on a sound basis, demands either considerable capital, or a capacity for sustained effort, and constant vigilance for foes, either insect or fungoid, or both; and unless the intending orchardist is prepared to put up with reverses and disappointments before success is assured, he will find that half-hearted efforts or misdirected energy lead up to just the same financial difficulties as is the case in any other walk of life.

The Chinese by forest waste have brought upon themselves two costly calamities—floods and water famine. The same will occur here in time if proper means of covering denuded hillsides with trees is not undertaken.

The blue-gum is not sufficiently appreciated in its native place. It is one of the fastest-growing trees in the world, and is largely planted in the United States for shelter-belts and for firewood. In some groves it has grown 100 feet in 10 years.

In an open country of high winds nothing adds more to the comfort of existence than a protecting belt of trees about the home. Whether the wind be the hot one of summer or the snow-laden blast of winter, its force is spent on the trees, and the house within is not swept by every passing gust. Orchards need windbreaks to save them from injury in the gales that accompany summer storms as well as to protect them from ordinary winds throughout the year. Gardens are more successful when surrounded by trees at a proper distance.

## THE PIG.

By R. J. TERRY, Poultry and Bacon Expert.

### DESCRIBING AILMENTS.

**F**EW farmers when asking advice from officers of the Agricultural Department describe as fully as they might the symptoms of a disease or complaint. It would considerably help the officer in arriving at a conclusion if surrounding conditions were described. The age of the animal should always be given, how fed (especially mention if any change has taken place in the food supply recently), the conditions as to housing, exercise, &c.; and in the case of young animals not weaned, describe the condition, food, &c., of the parent. I was attending a poultry show some few years back, when a lady approached me, and said, "Oh, Mr. Terry, do tell me why my fowls die." I asked if I could see the birds, either ailing or dead. The lady carefully unwrapped an egg from some cotton wool, remarking, "I did not bring a bird, but here is an egg which was laid yesterday." I suppose I should have felt flattered at the lady's opinion of my abilities; but as the egg was not even laid by the dead fowl it was of little use in diagnosing. I am led to pen these notes by letters received recently from farmers asking for advice *re* pig troubles. It is possible two birds can be killed with the one stone—by replying to the enquiries at length, and at the same time showing the value of observing symptoms in such a common trouble as diarrhoea. Some pig men I know would say the latter symptom could be seen by anyone. Do not be in a hurry; just finish reading first. If you would be successful in treating this or any other complaint you should try to ascertain the cause. The cause in the complaint under consideration may often be found in the character of the *faeces* expelled, and a correct diagnosis assisted by observation of other symptoms, such as separation from the herd, or standing apart with humped back in the sty when the rest of the farrow are curled up asleep with the sow, loss of appetite, colicky pains, coldness of the skin, tucked-up belly, restlessness, and, not least, the offensive nature of the dung, in which a careful observer will note portions of food which have undergone none of the process of digestion, and by which he can identify the cause of the trouble. It should be noted, too, whether the looseness is temporary and if the appetite is retained. If so, restoration may be expected. If the scouring is persistent and the appetite lost, the pig will probably die, and while he lives prove a source of more or less danger to his fellows. When with young pigs the discharges are mixed with blood and mucus, there is little chance for them, and if proper treatment has failed one may begin to consider whether diarrhoea in such instances is only a symptom of a disease which is fortunately of extremely rare occurrence in Tasmania. A pale, slate-coloured diarrhoea may mean a congested liver, or one having tubercles

or other tumours, or absence of biliary fluid from the intestine, due to any other liver obstruction.

From various causes there may be obstruction in certain vessels which, if prolonged, would cause jaundice. I have seen a number of pigs at different times in England which had symptoms pointing to jaundice; it is more common than is generally supposed.

Young pigs are naturally more liable to scour than those of mature age, and the cause may be looked for in the mother's milk, and also dirty surroundings; anything which disagrees with the sow affects the suckers. The acquired immunity from filth, which is so marked a feature in domesticated swine, is least powerful at this age, and there can be little doubt that decomposing matter upon the teats of the sow is often responsible for "upsets" in the pigs, in which case scouring is nature's remedy for getting quickly rid of deleterious substances, which would produce worse results if not purged away. At a very early age pigs begin to "nose" over the litter and "sample" the mother's rations, and unsuitable food thus taken, before digestion is fitted to deal with it, will no doubt cause scour. In the case of older swine, sudden changes of food, swill from all sorts of places, and of unknown composition, and often containing soda or caustic potash, in the form of washing powder, with which dishes and other vessels have been washed, including dairy utensils. Then there are those who keep pigs near cities. In warm weather the fermented "wash" taken from towns is a fruitful source of diarrhœa, pig-keepers reckoning too much on the capacity of swine to tolerate decomposed substances, which would certainly make other animals ill, if not prove fatal. This belief in the immunity of pigs to what is now known as ptomaine poisoning was well founded, for there is no doubt that the gaunt pigs of a century ago were much more hardy than the more refined breeds of to-day, the owners of which fail to recognise the value of charcoal, wood-ashes, &c. (See article on "The Pig" in last issue of "Gazette.")

Not only is putrid animal and vegetable matter constantly given to pigs in collected swill, but many farmers give them the flesh of animals that have died. Let them not suppose that because no harm results in many instances there is no risk. Scour, then, it will be seen, arises from various causes, some of which can be ascertained by the dung, and changes made in the food, which will be likely to prevent its recurrence.

#### TREATMENT.

So far as medical treatment goes, we do well to take Nature's hint, and cleanse the alimentary canal of any remaining fermented food by a dose of castor oil, which will most likely be taken in warm milk, and act in a couple of hours; after which we may give astringents, such as chlorodyne, laudanum, and chalk, catechu, peppermint, cinnamon water or bark, alum water or a decoction of wattle bark. The compound tincture of rhubarb is an excellent remedy when we know that some gastric disagreement has originated the trouble. If by the slate-

coloured discharge and the profound depression, perhaps frothing at the mouth and yellowness of the white of the eye, we suspect the liver, we may give a good dose of calomel as a preliminary, and then follow it up with very small but repeated doses of Epsom salts. Small doses twice or three times a day will slowly but surely unload a congested liver, and cure either constipation in the first portion of the large intestine, or diarrhœa in the lower portion, where the fermentation is established. Pigs as well as cattle may suffer from diarrhœa, while old impactions remain in another section of the canal; hence the wisdom of such apparently contradictory treatment as laxative, both for constipation and the opposite condition of scour or diarrhœa.

One may conclude these notes by once again impressing upon stock-breeders the importance of a trained observation, which should include what passes out of animals as well as what they take in.



Harvesting.

## A COURSE OF INSTRUCTION IN PRACTICAL DAIRYING.

By A. CONLON, Government Dairy Instructor.

*(Continued.)*

### AYRSHIRES.

**A**MONG the pure dairy breeds the Ayrshire holds pride of place in the affections of Tasmanian dairy farmers.

Fortunately less attention is paid now to show points, the milk-producing capabilities of the animals being studied much more than was formerly the case. This has been brought about by the further education of the farmer, and the better understanding of the method of keeping milking records of his herd. Breeders quickly realised the value of this class of work, and responded by carefully selecting sires of milking pedigree, and tabulating the milking performances of all cows intended for breeding purposes. The history of the breed has yet to be written, although of late years much valuable research work has been carried out in order to determine, with some show of accuracy, the origin, and subsequent development, of these justly-celebrated cattle. It appears that the first methodical efforts to improve the cattle in the Ayrshire districts of Scotland were made about the middle of the eighteenth century by the introduction of certain cattle from a distance, but it has not been definitely proved of what breed these introduced cattle were, although there seems strong evidence to show that they were of Dutch origin.

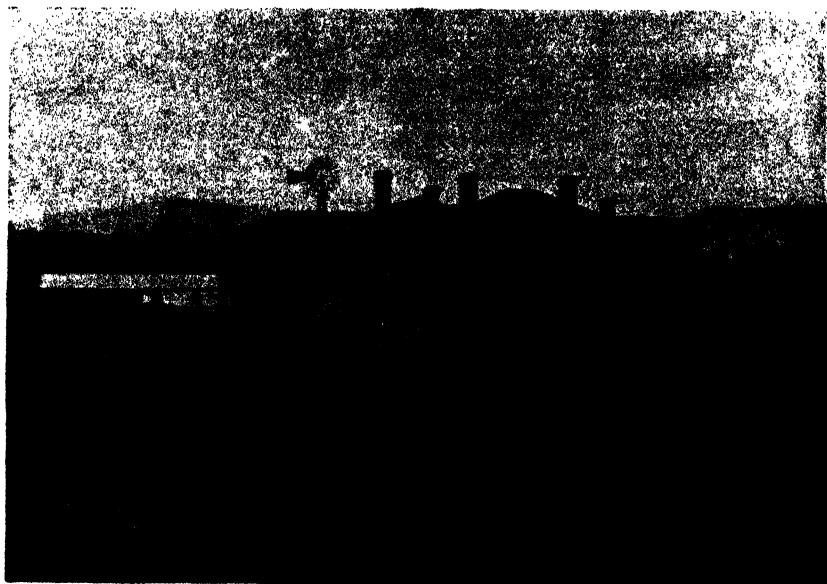
However, the work of improvement went on from this time upon systematic lines by judicious selection and breeding, until the introduction of the present method of systematically recording the yield and quality of each cow's milk. The credit of inaugurating the milk-record movement in Scotland is due to the late Mr. John Speir, who found the system in operation in Denmark during a visit paid by him to that country in 1895. He succeeded in getting the work started under the auspices of the Highland and Agricultural Society in 1903, and personally superintended. He also checked the sheets and byre-books of every herd tested, summarised the results, and framed the annual reports. The work was carried on by the Highland and Agricultural Society until 1907, when it was transferred to "The Ayrshire Cattle Milk Records Committee," under whose supervision it has since become a permanent and successful institution. The scheme is now on a solid foundation, and the annual reports issued by the Committee contain the records of an increased number of tested cows each year.

In 1904 the number of cows tested was 389, and the seventh season, for the year 1909, the number of cows tested had increased to 9202.

Local societies are formed in the various districts to assist the central body and facilitate the movements of the experts when visiting the herds for the purpose of taking records of the weight and composition of each cow's milk, each herd being visited at intervals of two weeks.

The visit of the expert is timed to allow of his being present at the milking in the evening. He remains at the farm that night, attends at the morning milking, and having completed his records is then driven by the owner to his next place of call. The following extract from the Committee's report on milk records for 1909 will show the value they attach to the work being done:—

“What has made for permanency in the movement is the stimulus which it has given to the fostering of milking pedigree. Before the inauguration of records anyone in search of a bull or a cow for breeding purposes had to rely solely on the representations of the seller and the look of the animal. The possession of tabulated milking results has to a large extent eliminated the element of chance in such transactions



A Dairyman's Home in Tasmania.

and given confidence to the buyer. Incidentally, this has resulted in an increase in the price of pedigree-milking Ayrshires. Both home and foreign purchasers place considerable reliance on the records. They still want an animal showing substance, constitution, and symmetry; but it is milking performance that enhances the price, and many purchasers prefer an animal of shorter pedigree (if the milking record is satisfactory, or, in the case of a bull or heifer, if the milking pedigree of the dam or sire can be substantiated) to one with an extended pedigree on the ordinary lines, where a milking record is absent or not available.”

Recent years have shown a vast improvement in the quality of Ayrshire cattle in Tasmania, and once the quarantine restrictions are so modified as to enable Tasmanian cattle to be shown on the mainland and brought back, local breeders will undoubtedly score heavily, as climatic



conditions are eminently favourable to the breeding of cattle with strong constitutions; and there is no reason why the great success of the Tasmanian sheepbreeder should not be emulated by the breeder of Ayrshire and other dairy cattle.

The first Ayrshire cattle to arrive in Australia are supposed to have been a bull and two heifers brought to Sydney about the year 1822, by Mr. John Wylie, the passage out occupying nine months. Scales of points for the purpose of judging Ayrshires from an ideal standpoint have been fixed at various times by different authorities, but the following may be taken as official, having been published in connection with the "Ayrshire Cattle Herd Book" of Scotland in 1906:—

*Descriptions of Ayrshire Cow, with Scale of Points, published in the Ayrshire Cattle Herd Book, 1906.*

	Points.
1. Head short, forehead wide, nose fine between the muzzle and the eyes, muzzle large, eyes full and lively, horns wide set on, and inclining upwards ... ..	8
2. Neck moderately long and straight from the head to the top of the shoulder, free from loose skin on the under-side, fine at its junction with the head, and enlarging symmetrically towards the shoulders ... ..	3
3. Forequarters—shoulders sloping, withers fine, chest sufficiently broad and deep to ensure constitution, brisket and whole forequarters light, the cow gradually increasing in depth and width backwards ... ..	11
4. Back short and straight, spine well defined, especially at the shoulders, short ribs arched, and the body deep at the flanks ... ..	13
5. Hindquarters long, broad and straight; hook bones wide apart, and not overlaid with fat; thighs deep and broad; tail long, slender, and set on level with the back ... ..	11
6. Udder capacious and not fleshy, hind part broad and firmly attached to the body, the sole nearly level and extending well forward; milk veins about udder and abdomen well developed. Udder ... ..	20
The teats from 2 to 2½ inches in length, equal in thickness, the thickness being in proportion to the length, hanging perpendicularly; their distance apart at the sides should be equal to about one-third of the length of the vessel, and across to about one-half of the breadth.	
Teats ... ..	12
Mammary gland ... ..	5
7. Legs short in proportion to size, the bones fine and joints firm. Escutcheon ... ..	1
8. Skin soft and elastic, and covered with soft, close, woolly hair	6
9. Colour, red of any shade, brown, or white, or a mixture of these, each colour being distinctly defined. Brindle or black and white is not in favour ... ..	2
10. Average live weight, in full milk, about 10½ cwt. ... ..	4
11. General appearance, including style and movement ... ..	4
Perfection ... ..	100



Ayrshire Cattle—A Tasmanian Dairy Herd.

## FRUIT-CULTURE IN TASMANIA.

By JOHN OSBORNE, JUN., Horticultural Instructor.

**T**HE soil most suitable for the apple is a light-grey loam overlying a loose friable clay.

The pear delights in a strong loam, with a fairly porous clay sub-soil, and will consume large quantities of water, but cannot endure moisture in a stagnant form.

The apricot thrives on a deep, strong soil—one that is liberally supplied with clay particles. A late district, or situations likely to be visited by late spring frosts, should be avoided, as the apricot suffers on cold nights, especially when the fruit is near the stoning period. Warm, sunny slopes should be chosen; low-lying, cold soils being altogether unsuitable.

The peach, nectarine, and plum require a good deep soil, but will succeed in poor land if well cared for. They are better when planted on warm slopes, where the cold winds of early spring cannot unduly influence them.

The cherry loves a deep alluvial soil that is well supplied with moisture, in a position that will give immunity from frosts and cold winds in the early spring.

The foregoing statements regarding the requirements of the different fruits grown in Tasmania refer particularly to what one might call the ideal situation for the different fruits, and are by no means the last words that are to be used in this connection. The soils in Tasmania are quite as variable as those of any of the other States in the Commonwealth, and the fact that in all parts of Tasmania the fruits mentioned (all or in part) flourish exceedingly, is proof that, of all trees, the fruit-tree of the temperate regions is the most adaptable.

In the extreme south of the island, where the vegetation consists of the giant blue-gum and stringy-bark, the land—a light soil over a deep rich clay—when cleared and planted, will produce the best of pippin fruit. Running north and west are the fruit centres of Geeveston, Franklin, Huonville, Glen Huon, Ranelagh, Judbury, Lucaston, Grove, Crabtree, and Mountain River. The traveller will notice the great variety of soils met with, and the splendid response made by the trees, in each of the lands planted.

The country north and east from Dover embraces the lower portion of the Huon River plantations, Lovett, Channel, Bruni Island, Tasman Peninsula, Maria Island, and working west, Spring Bay, Swansea, Campania, Colebrook, Bagdad Valley, Tea Tree, Brighton, Richmond, Forcett, Sorell, Cambridge, Bellerive, South Arm, and Glenorchy, including Kangaroo Valley, Moonah, Berriedale, Bismarck, Derwent Valley, and taking in Uxbridge, Ellendale, Hamilton, and several smaller districts.

In the north the fruitgrowing belts include the Tamar valley, Beaconsfield, Glengarry, Winkleigh, and Frankford on the west, and George-Town, Lefroy, and Piper's River on the east.

North-east from Launceston are Lalla, Turner's Marsh, Karoola, Lilydale, Tunnel, Scottsdale, Ringarooma, Moorina, Gould's Country, and the new fruitgrowing centre of St. Helens. In the north-western district, at Hagley, Westbury, Deloraine, Elizabeth Town, Dunorlan, Kimberley, Railton, Latrobe, Spreyton, Devonport East and West, Don, Forth, Ulverstone, Burnie, Somerset, Wynyard, Boat Harbour, Forest, Irish Town, Montagu, Marrawah, and many smaller centres fruit is being grown either for commercial purposes or for home use.

In the districts mentioned, which one may safely say are representative of the whole of Tasmania, are to be found very many classes of soil, from the poorest gravelly deposits to the richest chocolate lands of the North-West Coast.

In order to illustrate the adaptability of the fruit-tree, the apple particularly, one has only to observe as he passes through any district mentioned the soil in which the trees are planted.

In the southern districts there will be found orchards planted on the lower slopes of hills that are several hundred feet high. The soil is rich and deep, being made up, no doubt, by erosion from the heights above.

Again, on the opposite side, with only a road (in some cases only a fence) between them, will be seen an orchard planted on a light sandy soil, with the clay in some cases 3 and 4 feet below, almost out of reach of the roots of the trees. In another part of the district the observer will note that the trees are growing on a flat piece of land that previously produced a rough kind of scrub and heath, with here and there a poor miserable peppermint, all denoting poverty of soil and want of draining. He will find, also, in another corner, a piece of land that is deep, and dark-grey (almost black) in colour, originally covered with ti-tree. This soil no doubt is a river deposit, and when drained and sweetened is very rich in plant-food. As a consequence the trees thrive amazingly, and unless well managed will give little fruit.

In districts further north will be found tracts of country almost forbidding in appearance, being chiefly gravel intermixed with sand and clay, in some cases having a "bar" of sand that is cement-like in consistency, at a depth of from 1 to 4 feet. In every case immediately below this bar will be found a good clay, and unpromising as such a soil appears to be, should the planter take the precaution to break through this obstacle when preparing to plant his trees success will be assured.

Near the river sides will, in many cases, be found extensive flats. These have been deposited in by-gone ages by floods, and when examined will be found to contain layers of good soil alternating with layers of waterwashed stones—a not very promising situation for fruit-trees, as its water-retaining power is weak.

Again, going further north, will be found heavy soils with a heavy wet subsoil. These are excellent wheat lands, and when well drained will grow the best of fruit; but in the rough it is the most unpromising country imaginable.

In the far north-east—at St. Helens—one meets with granitic deposits. The disintegrated granite produces a soil that will give the best of fruit. Harking back to the west, through Gould's Country, some of the richest land in Tasmania is met with, as witness the immense eucalypts at present growing there. The land is still a granitic formation, and much good fruit is grown on it. At Scottsdale, the centre of what may be called one of the richest districts in Tasmania, will be found a very fine orchard, that is worked with much profit, altogether disproving the statement that the rich soils will not grow fruit.

The same condition is found at Lilydale, where the land, although different in colour, is very rich in plant-food. The orchards here also are very profitable ones.

In the Tamar valley, where a few years since the soil was thought to be too poor to grow anything but a herbage suitable for sheep, good results are being obtained. The faces of the banks are being changed rapidly, the timber and scrub giving place to smiling orchards and homesteads.

On the North-West Coast are certain areas of land that some few years since might have been purchased at a very low figure, but which are now worth over £10 per acre. This land for many months of the year is practically under water, and apparently worthless. But on being drained and properly worked for a season, in order to ameliorate its condition, it becomes suitable for fruit-culture.

*(To be continued.)*



Orchard and Apple Store.

## POULTRY.

By R. J. TERRY, Poultry Expert.

### MAKING A START.

IN dealing with the initiation of a person into poultry-raising, these notes are written on the presumption that the aspirant has some knowledge of it in a small way, or that he is content to commence on a small scale, and increase his stock as experience is gained.

### CHOOSING THE SITE.

This is not an unimportant feature in poultry-raising, for not only has the suitability of the soil to be considered, but also its accessibility to markets, and whether or not cheap waste food can be easily obtained. First, dealing with the soil: It has been the fashion for poultry writers in the past, especially those in England and America, to insist on a sandy soil being the most advantageous for poultry-keeping. I must differ from this, and it is not with any degree of diffidence that I do so, for my experience has taught me beyond doubt that the very poor soil is not the most profitable for poultry purposes. In Tasmania there is only one class of soil that can be claimed to be unsuitable, and that is a stiff clay, for the following reasons:—It is wet and cold in winter, and thus opposed to egg-production; hard and baked in the summer, not giving the birds freedom in scratching or dust-bathing, and tending to cripple the feet of the birds, developing corns and bumble-foot; and further, the birds' droppings are not readily absorbed, but cake on the surface. Therefore, that class of land can be put on one side. There is little, if any, doubt that a rich loamy soil (slightly on the light side preferable) is the most suitable. In other words, soils which will grow luxuriant vegetation are best adapted for successfully rearing animal life, which in this instance means and includes birds. On that class of soil poultry can be made an adjunct to the production of other farm produce. This soil, being fertile, will, if pasture land, grow grass of sufficient density to absorb or utilise the poultry manure distributed on the land by the birds, thus 'keeping the ground sweet'—an absolute necessity, especially in the rearing of young stock. Fertile soil will not only provide the birds with green food, but also a certain amount of insect life, in the form of grubs, beetles, worms, and so forth. This might not be observable by the human eye, but the hen finds no difficulty in gathering into her crop insects such as have been referred to. Further, if it has been thought desirable to run the poultry in comparatively small yards at certain seasons of the year, to keep them away from growing crops, or ripening fruit in orchards, this class of soil would speedily recover, and not be so likely to become what is termed poultry-sick, as would be the case on barren land having little or no vegetation to utilise the manure from the birds. When I am discussing later on the question of laying

out poultry-yards, my readers will see another strong reason for starting, if possible, on soil of good quality.

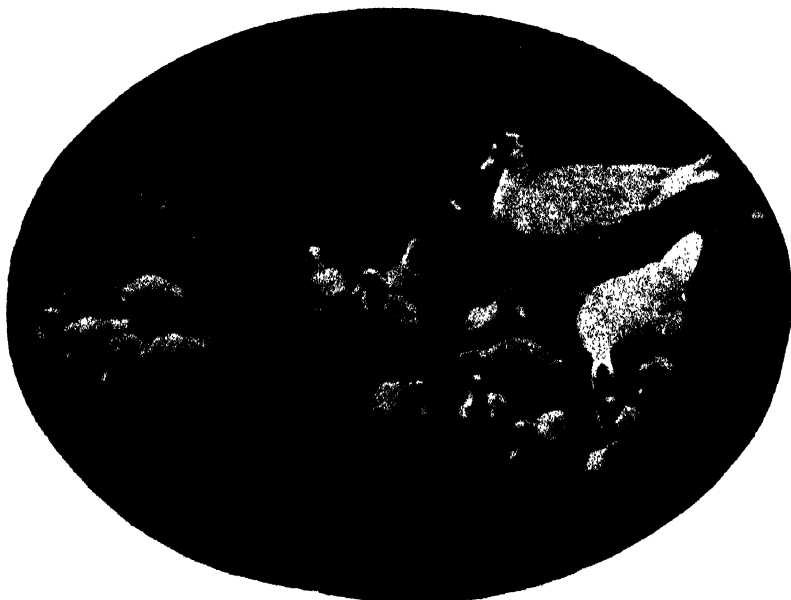
#### ACCESSIBILITY TO MARKETS.

This is also an extremely important matter, and is another of those points on which writers in the past have often been misleading. Accessibility to markets, to my mind, does not necessarily mean that a poultry farm shall be within 1 or 2 miles of a city or large centre of population. There are several things to be considered, and the pros and cons should be carefully weighed. It should be remembered that land near cities is extremely high in price, and the would-be poultry-farmer has to take into consideration the large amount of capital which is lying idle if he purchases this high-priced land; or, on the other hand, the rent is a drain on the profits. In most cases, in fact it may safely be said in all cases, no matter how near to the city, the poultry-farmer has to crate his birds or eggs and place them in a cart. Now, it is the carting and the putting on the cart that takes the time; a matter of 2 or 3 miles, once on the cart, does not make a great deal of difference, and land might be procured more suitable, and at possibly one-eighth of the price, by being a few miles back. And when that is said, it is not meant to convey that a man who is within access of rail or steamer, though some miles from a city, has not yet reasonable accessibility to markets. Properly-packed eggs are carried safely on our railways, and at fairly reasonable rates. Unfortunately the same cannot be said of live poultry, so that the question of freight has to be taken into consideration when choosing a site, as it might mean, from some parts of the State, a matter of 4d. or more per couple less return on the birds (according to the class of crate used), and on small consignments much more than that. Where water-carriage is available the freights are in most cases reasonable, and if the eggs are placed on the steamers by consignors the risk of breakage is practically nil. There is one objection to water-carriage. At certain seasons of the year the boats may not run regularly, and if the farmer cannot depend on getting his produce, whether poultry or eggs, to the consignee on a regular day, then he is not going to obtain top market price. I have seen good turkeys which came by boat an hour too late for the market sold in a bunch at 3s. each, whereas if they had been an hour earlier they would certainly have realised double that, and possibly 7s. each. Another instance: In the Stanley district, if there were a regular line of boats which would connect with the West Coast, I am not going too far when I say that eggs (if we take the average all the year round) would be worth at least another 1½d. per dozen to the farmer, so that the beginner before definitely choosing as to where he is going to commence operations should make certain that he not only has some means of transit to market, but that those means are reliable all the year round. If eggs are the chief object in view (and it is easier for the novice to start in this direction than catering to

supply the demand for table poultry) he need not necessarily look for a means of transit to Tasmanian markets. If he has in his vicinity ports from which vessels are regularly trading to the mainland, he will find there markets equal to our own if he packs and grades carefully. This aspect will be treated at a later stage. During last season eggs were on a number of occasions shipped to Melbourne, and Tasmanian eggs topped the market by  $\frac{1}{2}$ d. per doz. Good fresh lines which contain a fair percentage of brown eggs will always be a payable proposition in the Melbourne or Sydney markets, as it is found that at least the northern portion of this State is looked upon there somewhat in the light of a suburb; therefore the eggs rank, as I have stated, equal to those produced in Victoria or New South Wales.

There is also to be taken into consideration when choosing a site what other type of land pursuits can be worked in conjunction with poultry, such as general grazing, dairying, or fruit-growing. Any of these industries might be termed very good hand-maidens to poultry-raising, and it will be found that instead of retarding them, the poultry, properly managed, will considerably augment the returns from these allied callings.

*(To be continued.)*



Muscovy Ducks at Springvale Gardens.



## A VISIT TO THE HAWKESBURY COLLEGE.

By H. J. COLBOURN, Agricultural Chemist.

**D**URING the progress of the Science Congress at Sydney I took advantage of the opportunity afforded me to visit the College with a party organised for the purpose. Owing to the threatening state of the weather in the early morning only a few turned up at the rendezvous for starting. The day turned out fine, however, and enabled us, under the able guidance of Mr. W. Potts, the Principal, to see everything of importance, and this amounted to a great deal, as the grounds are very extensive (3546 acres), and there is a fine equipment of buildings devoted in one way or the other to every section of the agricultural and horticultural industries. Electricity is the motive power employed for driving all the machinery connected with the institution. The energy is derived from powerful dynamos, and is laid on to every point where it is required. Water is pumped up from the Hawkesbury River, a mile or so away, by electricity, which is conducted from the central station by means of overhead wires connected with the pumping apparatus. This is a very good object lesson as to what can be done in this way for the farming interest, and it is obvious that such a system admits of indefinite expansion, and could be made applicable to almost every conceivable farming operation. What is to prevent several farmers from deriving all the motive energy they might require from a central power-station conveniently situated? This, it would seem, might very well be one of the elements of a system of agricultural co-operation, which might be made very far-reaching in its influence for the good of the community.

The shoeing forge is an important institution at Hawkesbury College, and some well-made horseshoes are to be seen, the work, I understood, of the students. The harnessmaking establishment is perhaps of equal importance, and the work of the students in this department looked quite equal to what one might purchase at a good harnessmaker's shop. A point worth noting was that every tool, and a considerable number of these appeared to be required, was conveniently to hand in a holder fixed along the front of the bench. Common household furniture is made in the carpentry department of the establishment, and we were informed that the knowledge here obtained by some of the students had been put to very useful effect after leaving the College.

The livestock of the College farm all seemed the best of their kind. Some specially fine Berkshire and Tamworth pigs were to be seen, and a very fine herd of dairy cows. The apparatus for milking cows artificially was being worked very effectively at the time of our visit and excited much interest; the effect of the suction tubes, as tested by the visitors' fingers, being a new experience to most of them. The pigs were

brought out, we were told, upon the paddock system, a suitable series of crops being grown for the purpose. The paddock system is the only one, it appears, which pays upon the mainland. Lucerne, hay, and maize ensilage appeared to be the leading fodders employed upon the farm for dairy cows and other stock, which certainly had no occasion to quarrel with their provender, the lucerne hay, in particular, being remarkable for its fine aroma. Cow peas were grown in considerable quantity upon the farm, both for pig-feeding and ploughing-in purposes. The orchard trees were, I understood, chiefly manured by the ploughing-in of cow peas, a system of treatment which appeared to suit the trees, judging from their luxuriant state of growth. The soil was of a sandy description, and not remarkable, I believe, for its original fertility. Vines are grown for the production of grapes and raisins, but not, as I understand, for wine. The quality of the dried, bottled, and canned fruit had, the Principal informed us, been thoroughly tested by experts in Europe, and found to be of the highest class. An interesting feature of the establishment was the apparatus for the artificial drying of fruit. A quantity of peaches were undergoing this process, which, we were informed, could be completed in 24 hours or less. It struck one what an important thing it is for Tasmania that such a process can be satisfactorily applied in the case of apples, as this means that fruit of inferior quality or externally blight-damaged can be utilised; and further than this, it is a sort of guarantee that the orchard industry cannot very well be overdone, since produce of this kind is not perishable, and can be transported to places or utilised in situations to which it would be perhaps impossible to convey fresh apples. I need not dwell upon the very complete scientific equipment of the Hawkesbury College for the teaching of chemistry, biology, botany, and other sciences bearing upon agriculture, or upon the veterinary and surveying classes which are all well provided for. It is certainly much to the credit of the Government of New South Wales that such a splendid institution has been established in the State, and it must further be a source of congratulation that it has succeeded in securing the services of such a capable principal as Mr. Potts, whose kind hospitality concluded a very interesting and satisfactory inspection.

The easiest way to get the seeds out of pine cones is to soak same in hot water for a couple of minutes, and then put the cones in the sun.

Orchardists should look upon the mussel scale as one of their worst enemies. A thorough spraying with red oil emulsion will remove the trouble.

Graders are coming to the fore in fruit-packing. Some growers assert that the fruit does not keep well owing to bruising on going through the machine; on the other hand it is contended that with proper care no harm is done to the fruit.

Powdery mildew or "fire blight" is very destructive, and should be checked by using Bordeaux mixture at half winter strength about the end of November in each year. The trouble is a mould like black spot. The spores winter on the trees, and during showery weather in spring when the sun has power spread rapidly.

## PROCLAIMED WEED.

HEMLOCK (*CONIUM MACULATUM*, L.).

By R. A. BLACK, Federal Quarantine Officer (Plants), &c.

(Concluded.)

WRONGLY IDENTIFIED WITH WILD CARROT.

MANY people are under the impression that hemlock is the wild carrot, which is, however, upon ordinary observation very different, and has not the foetid smell which the former plant has. The carrot, when run wild, can only be mistaken for hemlock when viewed from a distance; when examined closely the difference is apparent at once. The leaves of the carrot are not so dissected, and their ultimate parts are longer and more linear, and end in fine points. The stems are sparsely clothed with soft white hairs, and the general involucre completely surrounds the umbels, and is composed of about twelve linear bracts united at their bases, varying up to an inch or more in length, and ending usually in five spreading filiform branches. The simple umbels are similarly surrounded. The rays of the compound umbel are much more numerous than those of the hemlock, and number often as many as one hundred. When in fruit the carrot could not possibly be mistaken for hemlock, because, unlike the latter, it is covered with spiny bristles.

### HOW INTRODUCED.

The introduction of hemlock to the North-West Coast is attributed to a lady residing at Stanley, who informed me that she brought some of its seed to Stanley and planted it in her garden, believing it to be wild carrot. By distributing it amongst her friends it was consequently started in fresh centres, and as a final consequence, through neglect, spread beyond the garden fence. On many occasions when travelling in different districts of the State I have noticed it tastefully arranged in vases, and was always informed, when the question was asked, that it was the carrot fern or wild carrot. The leaves are certainly very graceful, being the plant's chief attraction, and were it not for its highly objectionable smell and poisonous nature it would be an acquisition to any garden.

### INJURY.

Hemlock is a plant which is deadly poisonous, not only to some stock, but to man. It is frequently mentioned in the classics, and more than once Shakespeare refers to it:—

“Round about the caldron go;  
In the poison'd entrails throw  
Root of hemlock digg'd i' the dark.”

*Macbeth*, IV. 1.

In the “Natural History” of Pliny, translated by Philemon Holland in 1601, reference is made to it: “As touching hemlock it is also a

ranke poyson witnesse the publike ordinance and law of the Athenian: whereby malefactors who have deserved to die were forced to drinke that odious potion of hemlock."



Hemlock (*Conium Maculatum*, L.).

The poison administered to Socrates, who in 399 B.C. was accused of impiety (the introduction of new gods) and of corrupting the youth and subsequently condemned to death, was supposed to be hemlock of the species *C. maculatum*, but other authorities believe it to have been the water-hemlock (*Cicuta virosa*), which is very poisonous, and according to

Prof. Hedrick, of the Dominion of Canada, a piece of the root of this plant (*C. virosa*) about the size of a walnut is sufficient to kill a cow in about 15 minutes. James Law, in his "Text Book of Veterinary Medicine," when speaking of hemlock (*C. maculatum*), said that "it is common in the Northern States of America as in Europe, where it is found to be deadly to stock in its fresh condition. But," he says, "it is much less so when dried in hay owing to its having parted with its volatile poisonous ingredients." It is not likely that this plant will prove a nuisance to farm crops, because there is not much opportunity for it to do any harm, but owners of stock are certainly menaced. In many of the country townships I have seen it growing in profusion in by-ways, and as dairyowners and others are permitted under certain conditions to graze their stock in streets of municipalities there is certainly a possibility of danger to the cattle. It is on record that there have been several deaths to stock through their eating small portions of hemlock, and it is not so very long ago that a dairyman near Hobart reported the death of one of his fine milch cows, which upon investigation was found to be due to its eating this plant. It is also reported that in Victoria two children died through eating it, mistaking it for wild carrot.

#### SYMPTOMS OF HEMLOCK POISONING.

According to Dr. Willmot, the State Veterinary Surgeon, the plant is most dangerous to stock at the time of the year when the fruit is just forming. Two to four pounds of hemlock when ingested by an animal at this time would very probably prove fatal, and would produce the following diagnostic symptoms.—"After a lapse of 20 minutes to half an hour there is apparent dullness and stupidity, the eyelids drooping and swelling without change in the pupils. Later on the limbs appear to be affected and the animal staggers about and probably falls down, when the breathing becomes embarrassed. The brain in such cases does not appear to be affected, and death is usually ushered in by asphyxia."

#### TREATMENT FOR HEMLOCK POISONING.

"When such symptoms are noticed and hemlock is known to be growing where the animal has been pasturing, the treatment should be:—To use the stomach-pump, if possible, and diffusable stimulants, such as carbonate of ammonium and spirits of nitric ether; keeping the animal on the move; employing artificial respiration, if necessary, and warmth to the extremities."

#### HISTORY OF ITS GENERIC NAME.

Whilst writing the description from a freshly-gathered specimen of hemlock the volatile principle was quite powerful enough to produce a slight dizziness upon myself, and sensibly affect by mouth parts, including my tongue. It is now easy to understand the meaning of its generic name—Conium—which is said to be derived from *Kῶνος* (*kōnos*), "a cone or a top," whose whirling motion resembles the giddiness produced

on the human constitution by the poisonous juice of the plant. Some authorities are of opinion that *Conium* is derived from *κόνια* (*konia*), "dust or powder," thinking that it may have some reference to the pollen; but such application is not evident.

#### ITS USES.

Hemlock, although being of such a deadly nature, has a value in the department of medicine, and the virtues which it possesses reside in an alkaline principle termed conine or conia, which is most abundant in the fruit and leaves.

#### HOW TO DESTROY THE WEED.

There should be no difficulty in destroying this plant, because, unlike some noxious weeds, it is large, and has no creeping rhizomes which seem to defy destruction at times. It should be rooted right out before it seeds, which it does in Tasmania between late spring and summer months, and then burned.

#### ITS IMPORTATION STOPPED.

Hemlock is a prohibited weed under "The Federal Quarantine Act, 1908," which means that the importation of the plant or its seed from any part of the world into the Commonwealth of Australia is forbidden under a severe penalty.

### PROFITABLE TREATMENT OF SEPARATED MILK.

[Extract from Agent-General's Report.]

My attention has been directed to what appears to be the profitable treatment of separated milk at the milk factory, and also whey from the cheese factory. From these products I am informed it is possible to obtain casein by precipitation, worth about 30s. per cwt. in England. From the liquid remaining after the precipitation of casein, by evaporation lactose is obtained, and it is worth at the present time 45s. per cwt. I am informed that the yield to the manufacturer after paying expenses is 3d. per gallon for the separator milk and whey. The plant to treat 500 gallons per day is estimated to cost about £200, and I understand a second-hand plant could be obtained for about half that amount. The demand for casein is said to be good, and it would be necessary if any of the factories were to take up this work and instal a plant for that purpose—possibly I could pick out one of those emigrants who propose to go to Tasmania who would obtain the necessary instruction at his own cost if he were promised employment at such a factory.

Oregon pine and the Douglas fir are one and the same tree. Botanically it is a false hemlock spruce, and a native of the western slopes of the mountains of British Columbia, Washington, Oregon, and California.

## GARDEN NOTES FOR APRIL.

By J. OSBORNE, JUN., Horticultural Instructor.

### KITCHEN GARDEN.

**P**REPARE land for cabbage, cauliflower, and lettuce that were raised early in March, using as much well-decayed stable manure as can be comfortably dug in, and stirring the soil deeply after planting, which should not be done till the land has been exposed to the air for a few days after digging. Water thoroughly, and if the season is very dry it would be as well to puddle the plants prior to planting. This is done by taking some clayey soil and mixing it with water till the mixture has the consistency of cream; the plants are dipped in the solution and planted forthwith.

A final sowing of cabbage, cauliflower, and lettuce seed should be made for late winter planting. Do not sow the seed too thickly. A good sowing of prickly or winter spinach should be made, well manured beds being used. Do not plant the seed deeply. Any late onions should be harvested carefully and dried in a shed. Thin out the onions that were sown in March, and clean out any weeds that may be present. Another sowing of parsley may be made, using a deeply dug border, and putting the seed in thinly, and not too deep. All seeds must be gathered and dried thoroughly in a shed prior to storing. Beds that are occupied by beans and late peas, cauliflower, and cabbage, &c., should be manured heavily and dug up roughly, to lie idle for a week or two. A sowing of white stone, also strap-leaf, turnip should be made, but not too thickly.

Sow a few lines of parsnips and carrots for spring use.

Water carefully, as the evaporation is becoming much less day by day.

Asparagus beds that have become well ripened in their growth should receive treatment; the tops may be removed, and a good dressing of well-decayed manure applied. Sow coarse salt also (not too thickly).

Tomatoes should be kept picked, as a cold night may destroy the fruit. Use green fruit for pickling.

The crowns of sea-kale stools may be protected by a mulching of short manure.

Potatoes that have become ripened should be dug up and stored.

The ripened beets (red) may be taken up for use. During this month they should be at their best for pickling.

Small fruits, such as strawberries, raspberries, currants, and gooseberries, should receive attention. The strawberry should be top-dressed, using well-decayed manure that is rather short.

Keep the hoe going on dry days, as the weeds will need to be picked up if allowed to remain till the autumn rains fall.

### FLOWER GARDEN.

This month will see a great change in the garden, many of the earlier showy annuals having passed away.

Asters, stocks, marigolds, phloxes, salpiglossis, and a host of others may now be pulled out after the best seed-pods have been collected. These seed-pods, after drying, should be stored in rat-proof boxes, to be cleaned out at leisure. The beds should be well manured and dug up roughly.

Spring flowering bulbs that have been left should be planted without delay, and if the soil is dry a good watering should be given prior to planting.

Plant narcissus, also hyacinths. The latter should be planted  $2\frac{1}{2}$  inches deep in the soil; smaller bulbs about  $1\frac{1}{2}$  inch.

Plant pansies, dianthus, yellow cosmos, East Lothian, intermediate, and 10-week stocks.

Gladioli, as they become ripened, should be taken up, and after drying, should be stored, a little powdered sulphur being scattered among them to destroy mites, &c.

The beds of cosmos should receive attention. They will soon be full of flowers, and branches that have a tendency to drop should be tied up. An occasional dressing of liquid manure will assist them greatly; they are very gross feeders.

Chrysanthemum beds should receive attention, loose branches being tied in, and a copious watering given during dry weather.

Use the hoe frequently.

Dahlias will be good still, and should keep the garden bright till the frost appears.

The carnations that were potted in March must be watered carefully, as they are likely to be attacked by a fungus that is very harmful.

Antirrhinums that were raised from seed in the early summer may be put out in beds that have been well prepared. These will serve for early spring flowering. Be careful over the watering; the plants would be better if kept a little on the dry side.

The tea roses that are intended to flower early should be well pruned back to induce a good growth before the winter sets in.

Boronia of sorts may be stripped, and a lot of cuttings placed in some light sandy soil, to be placed in a light airy position; do not over-water.

Gaillardias may be treated in a like manner.

All herbaceous plants that have ripened their growths may be cut down and cleaned out.

Sweet peas that have finished flowering may be removed also.

#### GREENHOUSE.

The supplies of water must be reduced as the sun loses power. Give ventilation freely.

Cineraria, calceolaria, and primula that have filled their pots with roots should receive a good shift. Use a good rich compost and place the plants in a light, airy position.

Pelargoniums that have been repotted and placed in the open to make new growths should be watched carefully, and at the first approach of frost should be placed under glass. Cuttings of same that were put in in January should be inspected, and all dead portions removed.



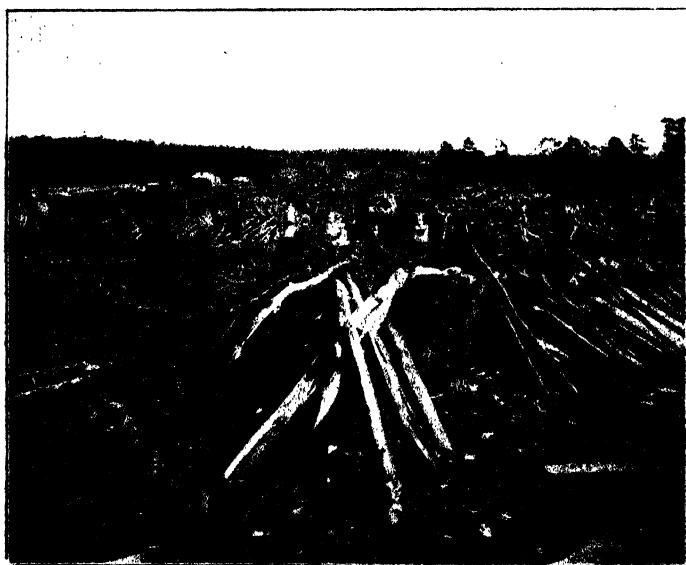
Cyclamen for spring flowering should be examined and repotted in a size larger pot, and placed in the open till they start to grow.

Gesneraceous plants, such as gloxinia, streptocarpus, and achimenes should be treated carefully, being slowly dried by withholding water from time to time. Tuberous begonias may receive the same treatment.

Ferns and palms may be cleaned up, weeded, and given more room. A little less water should be given daily.

Rex begonias should be given more room, care being taken in the watering, as they are likely to be attacked by a fungus that leaves them full of small holes.

Syringe in morning only, and on cloudy days withhold the moisture.



Clearing the Land.

## FORESTRY NOTES.

By L. RODWAY, Government Botanist.

No. 10.—BEECH, WILLOW, AND OTHERS.

*(Continued.)*

THE *Willow* deserves a distinct place in all forest-planting operations. It gives a wood of some service; it will grow in places where other trees will not succeed; and it will afford protection to water-courses.

We have four Willows widely planted in settled districts—Weeping, Crack, White, and Bedford Willows. The woods of all are very similar, but that of Crack Willow is generally considered the best. Bedford Willow is often looked upon as a hybrid between Crack and White Willows. It is the large, hairless-leaved form so commonly met with. Crack Willow has smaller hairless leaves, while in White Willow the leaves, at least when young, bear on their surfaces delicate, closely-appressed, silky hairs that give the surface a whitish appearance.

The principal character of willow-wood is that it is extremely light and fairly durable, but particularly that it will not readily crack or splinter; for this reason it is eminently suited for all sorts of commercial purposes. "It is good for interior work and flooring, it is extremely light, and lasts a long time. It is specially suited for the construction of railway wagons and trucks, and picked wood fetches a high price for cricket bats." (Nisbet.) It is the best wood for the lining of carts and wheelbarrows, especially those used for rough work, for though it may be bruised it will not readily split, and will not splinter.

Willow and Poplar are excellent woods for the making of paper-pulp and cellulose, but it must be remembered that these industries will only pay when vast quantities are available in order to keep the mills in constant employment. Trees planted along watercourses and for protection of conifer plantations are not likely to yield this quantity, yet we may find in some of our low-lying districts, for instance, heathy land and button-grass plains—too moist for most conifers and too warm for Spruce—situations that cannot be used for other purposes that may be rendered revenue-producing by devoting them to this purpose.

Willow is the easiest of trees to grow. It is only necessary to plant live sticks where it is desired, and they will strike without further attention.

The *Poplars* produce a wood of the same character as that of the Willows, and used for the same purposes, though it is generally considered to be somewhat inferior. They have two advantages: they tend to produce a better bole and do better on a poor sort of soil. Black and White Poplars are freely planted in Tasmania, and do well. They will probably prove to be the best of the genus, though Aspen, Grey, and

Canadian Poplars may be equally as good. The lastnamed form "has been found to grow quickly in Germany on any sort of soil, including even poor sand, although it does best on moist, marshy land." Further, Nisbet says of Black Poplar: "The wood of this tree is much used for railway-wagons, cart-making, and turnery. It is soft and light, hence suitable for packing-cases or similar articles where lightness is of more consideration than durability. Good trees fetch easily from sixpence per cubic foot upwards."

Boulger says of Canadian Poplar: "The quickest-growing of Poplars. Sapwood very wide, nearly white, heart brownish, tough, not durable if exposed to moisture, but of larger dimensions than, and equal in quality to, any other Poplar. It does not splinter, holds nails well, and does not readily ignite. Used for flooring, clapboards, the sides and bottoms of brick-carts and wagons, carcase-work, sabots, packing-cases, inferior fuel, and extensively for paper-pulp, for which purpose it is now largely and remuneratively planted in Britain."

*Silver Birch.*—This is a tree that may be of considerable use to us for planting in poor soils at considerable altitudes, where few other trees would succeed. It is one of the hardiest of trees. "It is to be found growing on the poorest sand, and it forms one of the most characteristic trees on the bare hillsides of the Scottish highlands, existing even in these mountainous districts at an elevation of fully 3000 feet above sea-level." (Nisbet). Our extensive elevated moorlands doubtless contain much land that, through the impossibility of effective draining, would only support such a tree as Common Spruce. Still there are many drained areas in and about these moors that will suit Scot's Pine and Birch. The question arises: shall these areas remain unproductive, or shall we utilise them for the only purpose to which they can be put, namely, the growth of a suitable class of timber. The growth of timber will not only lay up a harvest that some day will be thoroughly appreciated, but will reduce the destructive effects of the high winds that at present render this land of so little use. Given the protection of extensive windbreaks, a good deal of this country will produce good grass, and form excellent summer grazing for stock. The Balmoral Plain is a fair sample of the lake plateau. It is very bleak, and has an altitude exceeding 3000 feet, yet cocksfoot and English ray grass seem to find it quite suitable for their requirements, and they are certainly not the hardiest of grasses.

(To be continued.)

Bees are useful in the orchard as pollinising agents.

It is not generally understood that pines, fir, and cedar trees are purifiers of the atmosphere and healthful for consumptives. Want of knowledge was prompting an owner at Scottsdale to cut down two beautiful Deodar cedars because some illinformed people said they were not healthy. The benefit is derived from the turpentine evolved.

## DESTRUCTION OF FRUIT AND VEGETABLE PESTS.

By ALBERT H. BENSON, M.R.A.C., Director of Agriculture.

(Issued as a Bulletin by the Queensland Government.)

(Continued.)

**L**EAF-EATING beetles are very destructive in the case of English potatoes, pumpkins, marrows, squashes, melons, cucumbers, &c., and frequently do serious damage to fruit trees by eating the bark, leaves, and sometimes the skin of the fruit itself. The mango and fig beetles are well-known examples. Crickets often do damage by ring-barking young trees at or near the surface of the ground. Grasshoppers of kinds defoliate all kinds of fruit trees and vegetables, even stripping the leaves of such strong-growing plants as bananas and pineapples, and destroying the skin of citrus and other fruits. Cutworms, which are the larvæ of several species of moths, are often very destructive to young vegetables, such as cucumbers, melons, pumpkins, tomatoes, cabbages, &c.; also in the nursery, where they destroy the young shoots, as well as to root crops of several kinds. These insects usually work at night, and hide during the day at a depth of 2 or 3 inches, or even more, in well-cultivated soil, from the surface of the ground, adjacent to the plants on which they are feeding.

All these different insects are destroyed by poisoning the food that they are living upon, and the particular poison that is found most effectual is arsenic. Several arsenical poisons are used and are applied either in the form of a fine spray or as a dry powder, in which case the poison is mixed with air-slacked lime, fine ashes, or some other material of a similar nature. Arsenate of lead and Kedzie's mixture are the two best forms in which to apply arsenic, but there are several other arsenical poisons that have been recommended from time to time, such as Paris green, London purple, arsenite of soda, &c. They are not so satisfactory as those that I have recommended. In this class of insects there are some that deserve especial mention on account of their prevalence, such as the plant-eating ladybirds that so frequently defoliate English potatoes, and thereby spoil the crop. The beetles lay their eggs on the leaves of the potato, and these soon hatch out into the larval stage, and at once start to eat the leaves. Arsenate of lead applied as soon as they make their appearance is a sure remedy.

*The Pumpkin Beetle* is another well-known insect that has been especially troublesome this past season. The mature insects attack all kinds of plants belonging to the cucumber family, as well as many other plants, and if not kept in check cause serious loss. Arsenical poisons destroy these insects in large numbers, but once let them get such a hold as they have done this season, it is a difficult matter to keep them in check or to

prevent them from destroying the young plants as soon as they come through the ground. The insects are so numerous that, although many are destroyed by the poison on the plants, they kill the plant before it is strong enough to withstand their attack. I have had much success in fighting this pest by first dusting the young plants with fine dry wood ashes, and then, as soon as they had formed their second and later leaves, keeping them well sprayed with arsenate of lead. By this means I have managed to save the young plants, whereas I was unsuccessful when I depended on the poison from the start, as they ate the young plants, poison and all, and, though many insects were killed, they were present in such numbers that they soon destroyed every plant. The fine ashes acted as a protection to the young plants and allowed them to get away, and then the arsenate formed a sufficient protection to the stronger plants. When present in such numbers as they have been this season, combined action is necessary for their destruction, as poison should be used freely wherever and whenever they make their appearance if they are to be kept in check.

*Cabbage Worms*, the larvæ of several kinds of moths, also give a lot of trouble, especially if the cabbages are not making a rapid growth. They are easily destroyed by spraying with the arsenate of lead. If it is found that the poison does not adhere well to the leaves on account of their smoothness, then add a little sticky matter to the spraying material, such as molasses or even a weak resin and soda wash, and it will adhere well and poison every insect that eats it. In spraying cabbages do not apply the poison within two or three weeks of the time of cutting. The best results are obtained by spraying the young plants up to the time they commence to heart, after which, if the growth is good, they will usually do all right without any further treatment. If the moths are very bad, however, further sprayings will be necessary.

*(To be continued.)*

Rape grows well on rich land and supplies a large quantity of nutritious feed for sheep.

Specimens of pests, whether insect or vegetable, should be sent to the Department for identification.

The whole question of manuring can be summed up in the proper application of nitrogen, phosphoric acid, potash, and lime.

If you want an inscription for the sun to gild and the moon to silver, write up over the garden gate "Summer pruning done here."

In judging Ayrshires in Scotland one point only is given for the "escutcheon." This does not look as if a great deal of importance was attached to the formerly much-lauded theory of Guenon.

## WEATHER AND CROPS.

**CRESSY.**—Rain fell as follows:—On the 10th, 15 points; 11th, 26; 12th, 5; 14th, 42; 15th, 55; 16th, 34. This proved a great hindrance to all harvest operations. From February 16 to March 6 the weather was all that could be desired, but on the 7th a thunderstorm burst. The rain in February allayed all anxiety as to bush fires. At "Woodbourne," the largest wheat-growing farm in the district, 480 acres were threshed, averaging 19½ bushels per acre. The paddock returns were: 80 acres, sown before rain in autumn, yielded 27½ bushels per acre, seed being used at the rate of ¾-bushel and manure 40 lb. per acre; caterpillars did considerable damage. Thirty-two acres, sown before rain in autumn, averaged 32 bushels, and 70 acres, also sown before rain, gave a return of 18 bushels to the acre. Nine acres averaged 31 bushels, 15 acres of stubble land 25 bushels, and 8 acres of stubble land 19½ bushels—manured at the rate of 80 lb. to the acre. Six paddocks of fallow land, sown late, gave the following returns:—52 acres, 17 bushels; 52 acres, 13 bushels; 47 acres, 19 bushels; 22 acres, 19½ bushels; 22 acres, 24 bushels; 55 acres, 13 bushels. Thirty-six acres of Gluten spring wheat yielded 9 bushels, whilst 42 acres of the Federation variety only averaged 6 bushels. This wheat was recommended as rust-proof, but proved a complete failure, being so spoilt by rust as to be unfit for milling. Sixty acres of Algerian oats averaged 28 bushels, but 200 acres of white oats are not yet threshed, rain at time of writing preventing any work in this direction, as all this grain is carted direct to the machine. The yields generally have been much below the average, many fields only averaging 8 to 11 bushels, though several have reached 17 to 20 bushels, per acre. A small field of white oats—sown on October 31—which was affected by rust (as all late sown crops are in this district), gave a return of 46 bushels per acre. Of the seven farms which were recently to let round about Cressy, four have been taken up, and the others are still in the market.

**LYMINGTON SOUTH.**—Apples and pears medium. Plums and stone fruit good. During the past month the weather has been very dry, but heavy rain (accompanied by thunder) fell within the past few days.

**NEW GROUND.**—Harvesting in this district is now practically finished; only a few farmers are waiting their turn for the thresher. Both grain and potato crops are light compared with previous seasons. Estimated yields are:—Oats, 40 to 50 bushels; wheat, 17 to 41 bushels; peas, 25 to 40 bushels; potatoes, 3½ tons an acre. The potato crop is fairly free from the grub this year, and so far blight is unknown here. Several growers have finished digging and marketing their potatoes, but most others have the greater portion of their crop in the ground. The weather during the early summer was hot and dry, which, though favourable to harvesting, caused the feed to dry up. Recently there have been several good rains, and as the temperature continues warm and favourable to growth, there is plenty of autumn feed. The rain having well softened the ground, a good deal of early ploughing is being done.

**NOOK.**—A very glowing account of either the weather or crops cannot be given. Many of the crops have been cut, but whilst some of them were laying on the ground (where they had been left by the binder) rain came on before they could be put in the stook. The bulk of the grain has not been cut. The yield this year will not be heavy, as most of the crops are affected with rust and the grain is very light. Potatoes and turnips look better, and should turn out well.

**SCOTSDALE.**—Weather very dry. Feed fairly plentiful, but drying up, causing the cows to "go off" appreciably. Threshing has been commenced

on several farms, but the yields—owing chiefly to caterpillars—are not proving equal to expectations. Potato crops yielding very well indeed; late crops will be heavy. Some farmers are spraying them, one gentleman, who used a motor-pump, gave me the following particulars:—Strength of solution, 10 lb. sulphate of copper, 13 soda, 70 water. This was applied with a pressure of 140 lb. per square inch, and was found sufficient to saturate all the plants in an acre. The machine did an acre an hour comfortably with three men. Cost, all told, 7s. 6d. per acre.

TABLE CAPE.—Oats generally good. Wheat exceptionally good, except for a few blighty heads. After six weeks of easterly weather—continuous dry winds—the conditions changed in the beginning of February, and heavy rain fell. As none of the wheat had been harvested and only about one-third the oats, a considerable amount of damage was done, more especially as the rain extended over about a fortnight.



Botanical Gardens, Hobart.

## BOARDS OF AGRICULTURE.

THE following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	G. Pratt	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Channel	W. Baldwin	Woodbridge
Cressy	James Anderson	Cressy
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
Elliott	L. H. Shepherd	Elliott
Fingal	F. M. Lattin	Fingal
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Geeveston	F. Hyndes	Geeveston
Glengarry	W. Wheldon	Glengarry
Glen Huon	P. H. Young	Glen Huon
Harford	Geo. Sykes	Harford
Irish Town	E. L. Smith	Irish Town
Kimberley	H. Britton	Kimberley
Kettering	F. Hawkes	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
King Island	A. Bertram	King Island
Leslie	R. C. Reid	Fern Tree
Lilydale		Lilydale
Lymington South	T. Burnaby	Lymington
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marawah	E. Bonhôte	Marawah
Montagu	R. Ennis	Montagu
Meander	H. Evans	Meander
Mt. Seymour	W. Wilson	Mt. Seymour
Mowbray	G. H. Boatwright	Smithton
Mooreville-road	J. M. Douglas	Burnie
New Ground	A. H. Douglas	Moriarty
New Norfolk	B. R. Reynolds	New Norfolk
North Motton	O. Waters	North Motton
Nook	M. McInnes	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgley	W. Morris	Ridgley
Scottsdale	F. F. Tucker	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
South Preston	R. G. Allison	South Preston
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carins	Myrtle Bank
Sprent	A. Lee	Sprent
Staverton	T. Wootton	Staverton
Stoodley	J. Leo	Stoodley
South Springfield	M. J. Cox	South Springfield
Table Cape	H. J. Smith	Wynyard
Tyenna	—	—



## BOARDS OF AGRICULTURE continued.

BOARD.	HON. SECRETARY.	ADDRESS.
Ulverstone	H. A. Nichols	Ulverstone
Upper Mountain River	A. Griffiths	Grove
Wattle Grove	K. Lord	Wattle Grove (Lower)
Wilmot	D. E. Forbes	Wilmot
Yolla	D. T. Jones	Yolla

**Avoca, February 1.**

**PRESENT.**—Messrs. J. Conway (Chairman), H. Malkin (Treasurer), C. Davis, J. Macarthy, A. Freeman, C. Shelton, J. Parker, and G. Pratt (Hon. Secretary).

**AGRICULTURAL FARM.**—The Secretary read correspondence *in re* Director's circular regarding the State agricultural farm and school, and the Secretary's action in the matter was endorsed. The President pointed out that the subject was a wide one, and embraced a number of points requiring careful consideration. He regretted that as the league meetings were held monthly, only one copy of the circular had been sent, so that each member had not a copy. The Secretary promised to do what he could in the direction named.

**POULTRY EXPERT.**—Enquiries were made by members as to when the Poultry Expert might be expected to visit the district.

**CONFERENCE OF LOCAL BOARDS.**—It was agreed to fall in with the Director's suggestion in this matter, and send a delegate or delegates to such a conference.

**THE ONION.**—An interesting discussion on the onion and its diseases was held on the initiative of Mr. C. Shelton.

**Barrington, January 13 and February 11.***January 13.*

**PRESENT.**—Messrs. A. Rolls (Chairman), A. Cox, J. A. Moore, A. Morey, J. Cocker, J. Wyllie, and A. E. Moore (Hon. Secretary), and several visitors.

**NEW MEMBER.**—Mr. W. Cocker.

**FODDERS.**—Correspondence was received from the Department *in re* seeds, and the hope was expressed that the Board would be able to distribute the various kinds of seeds for experimenting in the production of fodders, as this was considered one of the principal methods of developing the dairying industry.

**HANDLING AND STOWING POTATOES.**—Correspondence was received from Mersey Marine Board on this subject. After discussion it was resolved, on the motion of Mr. A. Morey, "That the Secretary write to the Minister for Agriculture, asking that better facilities be given to farmers for handling and stowing potatoes; also that the Inspector be instructed to supervise same."

**ADDRESS.**—The proceedings concluded with an address by Mr. J. Cocker on "New Zealand," in the course of which he compared the agricultural and other conditions of the Dominion with those obtaining in Tasmania. He showed that, except in the matter of taxation, the comparison favoured Tasmania.

*February 11.*

**PRESENT.**—Messrs. A. Rolls (Chairman), O. Packett, J. Hegarty, J. McNally, D. Russell, T. Williams, and A. E. Moore (Hon. Secretary).

**POTATOES.**—Correspondence was received from the Minister of Agriculture with reference to the stowing and handling of potatoes for shipment. It was decided that the Director's recommendation—that the matter be brought under the notice of the shipping companies concerned—be adopted. The following motion, moved by Mr. D. Russell, was carried unanimously:—"That some active steps be taken to get West Australia's embargo on Tasmanian potatoes removed."

**Carnarvon, February 11.**

**PRESENT.**—Mr. Tanner (Chairman), J. McArthur, G. Wellard, G. Eldridge, G. Bellette, H. Burden, W. D. O'Neill, W. R. McGinniss, G. Albury, E. A. Target, and D. B. Blackwood (Hon. Secretary).

**NEW MEMBERS.**—Messrs. J. T. Blackwood and C. Trenham.

**ANNUAL REPORT.**—The Chairman read the annual report, as follows:—"In presenting this the first annual report of the Southern Peninsula Board of Agriculture, I must congratulate the Board upon the number of members on the roll, but at the same time record my regret at the paucity of the attendance at the last few meetings. The number of members on the roll is 33, and the average attendance during the past year was 10·5 for 10 meetings. The first matter of importance brought before the Board was the necessity or otherwise for a resident medical practitioner. Members were unanimously of opinion that one was urgently required. Various ways and means of securing the services of a capable man were discussed at later meetings, and your Secretary and Chairman attended a meeting at Taranna on the subject. The decision arrived at there was that a medical man wishing to practise in Tasmania should be communicated with before any definite action was taken in the matter. For this object a sum of £1 2s. 6d. was collected at that meeting, and at the following meeting an additional sum of 6s. was promised, making in all £1 8s. 6d., which amount was placed in my hands to defray cost of advertising, &c. There is a balance of 10s., which I suggest should be added to the amount raised to help the next unfortunate individual who is the victim of an accident on the Peninsula. As you all know, we now have a resident doctor, and I have every reason to believe that both his abilities and charges are highly satisfactory. Although the Board does not claim to have actually placed Dr. Beale on the Peninsula, still by the action of its members in agitating on the subject, I think we may fairly say it has been the indirect means of doing so. We have been visited by two of the experts, and their lectures were much appreciated. Even if they do not tell us many facts that are not already known to practical farmers, they remind us of them, and bring them more forcibly home by their lectures and illustrations. For instance, we all know that most land that has been worked for any length of time is deficient in potash; but how many try to remedy that? After Mr. Colbourn's lecture I tried the remedy in the case of potatoes and peas, and the results are more than satisfactory; they are startling. It has always been my wish that members of the Board should read original papers at the meetings, but so far only three have done so. Now there are very few amongst us so diffident that we do not consider we are authorities on some subject or other, and I consider it not only an act of courtesy but a duty that the knowledge should be disseminated, and the ideas or facts criticised in a friendly way, at Board meetings. We have written on various subjects to different public bodies, and our suggestions or requests have been duly acknowledged or acceded to. In forming this Board we were guilty of one great oversight, for we omitted to draw up any rules for our guidance. That omission will, I hope, be rectified at this or the next meeting. As regards the prosperity of the district from a farming point of view, the past year has been a favourable one. We have had a good early spring and a mild winter, and stock are looking well. As regards crops, this is not an agricultural district, though root crops do exceptionally well. The price of butter has been very low, but I think if we were all to combine so as to get a factory started here, or a factory cart to come around, better prices would be secured, for when butter was as low as 6d. or 7d., butter-fat was fetching 10½d. at the factory. In relinquishing the chair I must tender my sincere thanks to your Secretary for the unselfish manner in which he has given his time and services to the Board, and also to those members who have made our meetings a success, especially those who have come such long distances."

**BALANCE-SHEET.**—The Secretary, after thanking the Chairman for his courtesy during his term of office, and expressing the pleasure it had given him to work under him, tabled the following financial statement:—Receipts, £1 12s. : outstanding, 1s. Expenditure, £1 4s. 0½d. Balance carried forward, 7s. 11½d.

**ELECTION OF OFFICERS.**—A vote of thanks was accorded the Chairman and Secretary for their past services, and they were unanimously re-elected.

**SEED.**—The Secretary tabled a small packet of *Phalaris commutata* seed sent by Mr. L. A. Evans, which was distributed among members.

**RULES.**—The Secretary tabled the rules of the Clarence Board, which, with some modifications, were adopted.

**VICE-CHAIRMAN.**—The Chairman stated that at times it was inconvenient for him to attend meetings, and asked that a Vice-Chairman be appointed. On the motion of the Secretary, Mr. Eldridge was appointed to the position.

### Cressy, February 27.

**PRESENT.**—Messrs. H. Hingston (Chairman), W. J. Hingston, H. and E. Wheeler, G. Gill, F. Bratten, T. P. Emms, J. H. Summers, S. Sturges, G. Foster, E. Morley, L. Lee, G. Hill, F. Burton, and J. Anderson (Hon. Secretary).

**FARM.**—A pamphlet was read from the Director of Agriculture *in re* a scheme for a State agricultural farm and school. The matter was discussed, and members generally favoured a State farm rather than a college. On the motion of Mr. Gill, it was decided that Mr. Benson be invited to visit the Cressy show, with a view to arranging (if possible) a lecture at Cressy on the subject of the State farm and school.

### Frankford, February 25.

**PRESENT.**—Messrs. C. I. Knight (Chairman), J. J. Towers, J. A. Watson, D. Derbyshire, A. Plummer, G. G. Rossiter, and M. de H. Ponsonby (Hon. Secretary).

**BOARD MEMBERSHIP.**—The Secretary stated that there were now sixteen members on the roll.

**POULTRY EXPERT.**—The Secretary was instructed to thank the Director for his promise to allow Mr. Terry to act as judge at the Frankford horticultural show on March 30. It was also decided that the Secretary write and ask the Director to allow Mr. Terry to remain until Friday (April 1), and give a lecture that evening on pigs and poultry; the Secretary to also enquire if permission would be accorded for a poultry demonstration by the expert on Thursday—the day of the show.

**PRICES OF CROPS.**—The question as to whether it was possible to correctly estimate, before the crops ripen, the price of the farm products for the ensuing season, was raised by several members, and it was resolved that the Director be requested to take steps to publish early in the year the estimated yield of all grain, root, and fruit crops. [It would be difficult, not to say dangerous, to attempt to forecast prices of products, as these are regulated by the supply and demand. The publication of yields of crops is made by the Statistician's Department.—Ed.]

**THE PIG.**—A member said that he had a sow with a litter of some seven or eight suckers, which all at once had lost the use of their limbs, and commenced to froth at the mouth. Their throats also commenced to swell, and as they could not suck they all died but one. He was at a loss to account for such an attack and its consequences. [See article by Pig Expert on page 105.—Ed.]

**POISON FOR RABBITS.**—It was decided to ask the Editor of the "Gazette" what is the best and safest poison to use for the destruction of rabbits. [The Chief Inspector of Stock recommends the following procedure:—Put three sticks of phosphorus into half a pint of water and add two tablespoonfuls of

bisulphide of carbon (to dissolve the phosphorus), and leave over night. Place one-fifth of a tin of "Giska" into a vessel containing eight pints of water, and stir well until it becomes a red liquid; add 6 lb. of sugar, and stir again until dissolved. Then put in the phosphorus, first making sure that there is none undissolved, and add the pollard until the whole becomes too thick to stir, when it should be lifted out on to a level surface, and kneaded until it becomes tough. It may now be rolled out and cut into baits, which should be spread out for two or three days, by which time they will be found dry enough to handle. It is recommended that fine pollard be used, as it kneads quicker and resists the weather better than coarse pollard. A May pollard-cutter (to be had of Messrs. Crosby & Co.) will do the cutting thoroughly.—Ed.]

### Marawah, January 18 and February 22.

*January 18.*

**PRESENT.**—Messrs. J. Thompson (Chairman), R. Bolter, C. Dixon, J. Mahood, T. Marshall, M. Fitzpatrick, and E. Bonhote (Hon. Secretary).

**NEW MEMBER.**—Mr. Fitzpatrick.

**ALTERATION IN DATE OF MEETING.**—Wednesday nearest the full moon was fixed as the day of meeting.

**AGRICULTURAL EDUCATION.**—Members favoured the establishment of an agricultural college and farm, and were of opinion that the site should be somewhere on the North or North-West Coast, as the land there is eminently suitable for mixed farming.

**HOME COW-TESTING COMPETITION.**—Messrs. Thompson, Mahood, Moore, Fitzpatrick, and L. Cronin were appointed a committee to arrange for competition—to take place on February 8.

**CONFERENCE AT SMITHTON.**—Messrs. Thompson, Mahood, Bolter, Moore, and C. Dixon were appointed to represent the Marawah Board of Agriculture at the district conference to be held at Smithton.

*February 22.*

**PRESENT.**—Messrs. J. Thompson (Chairman), R. Bolter, J. Mahood, A. Wilson, C. King, and E. Bonhote (Hon. Secretary).

**MILKING COMPETITION.**—Result of milking competition held on February 8, 1911:—

Owner.	Cow and Breed.	Milk (24 hrs.)		Butter-fat, computed.	Date of Calving.
		lb.	Test.		
1. J. McGuinness, "Belle,"	Durham ...	33	3.9	1.43	15 Oct.
2. C. F. King, "Biddy,"	Durham ...	34½	3.8	1.46	15 Nov.
3. G. Uebergang, "Mountain,"	Durham ...	30	3.4	1.19	15 Oct.
4. Alf. Gale, "Prim,"	Ayrshire ...	24½	4.2	1.15	15 Aug.
5. Alfred Wells, "Dolly,"	Durham ...	27	3.6	1.08	15 Aug.
6. Alfred Wells, "Sally,"	Durham ...	25	3.8	1.05	15 Aug.
7. B. Cronin, "Pansy,"	Jersey ...	23	4.1	1.0	15 Aug.
8. B. Cronin, "Berry,"	Durham ...	30	3.5	1.16	15 Nov.
9. J. Thompson, "Pet,"	Ayrshire ...	19½	4.3	0.95	15 Aug.
10. F. Elliott, "Queen,"	Ayrshire ...	24	3.5	0.93	15 Oct.
11. H. Smith, "Fairy,"	Ayrshire ...	31½	3.4	1.18	15 Jan.
12. T. Marshall, "Dolly,"	Jersey ...	21½	4.4	1.06	Not given
13. T. Marshall, "Liza,"	Jersey ...	19	3.7	0.78	Not given

**GAZETTE.**—Members expressed themselves well pleased with the new "Gazette," and commented very favourably upon its get-up.

**TREES.**—The pine trees transplanted by Mr. Evans are doing well, and will be fit to set out permanently during the coming autumn.

**CONFERENCE.**—Correspondence was received from the Director of Agriculture in re proposed conference. Members expressed the hope that much good

would result therefrom, more especially to farmers in this district, who are at a disadvantage in being so far from the centre of administration.

#### Rubicon, March 4.

A meeting was held on the above date at Slater's Hotel. Considering it was harvest time there was a fair attendance.

**ELECTION OF OFFICERS.**—The following officers were elected for the ensuing year:—Chairman, Mr. T. Radford; Hon. Secretary, Mr. Chas. Slater; Treasurer, Mr. John Spicer; Delegate, Mr. T. Radford.

**MEETINGS.**—On the motion of Mr. McNear, it was decided that the Board meet monthly, at Parkham and Elizabeth Town alternately.

**DISTRICT CONFERENCE.**—It was resolved that Mr. T. Radford should represent the Rubicon Board at the proposed conference at Deloraine.

**SUBSCRIPTION.**—On the motion of Mr. T. Radford it was resolved that members pay 1s. yearly to cover expense of printed matter.

**GENERAL.**—Several other matters occupied the attention of members, notably pea-failure. The project was freely discussed, and ultimately left for further criticism until the next meeting. The attention of those present was drawn by Mr. McNear to the good results likely to accrue from the growing of strawberry clover in the district. On the motion of Mr. Spicer it was decided that the Secretary write to the Department of Agriculture and endeavour to obtain 1 lb. of the seed to be experimented with in the district, also for some seed of the *Phalaris commutata* grass and Canary Island pine. The Board then took the schedule into consideration.

#### South Preston, December 20 and January 16.

December 20.

**PRESENT.**—Messrs. W. E. Gillam, F. Tongs, J. Peebles, G. H. Wing, J. Gillard, and R. G. Allison.

**ELECTION OF OFFICERS.**—The following officers were elected:—Mr. G. H. Wing, Chairman; Mr. W. E. Gillam, Treasurer; and Mr. R. G. Allison, Hon. Secretary.

**RULES.**—The rules of the Clarence Board, with one or two amendments, were adopted.

**STATE FARM.**—Correspondence was read from the Director of Agriculture *in re* the establishment of a State experimental farm. Members were unanimously in favour of the project. The following motion, moved by Mr. J. Gillard, was carried:—"That the State farm be established in some centre between Launceston and Whitefoord Hills."

**SPRAYING.**—Mr. J. Peebles moved the following resolution, which was carried unanimously:—"That the expert be requested to give a potato-spraying demonstration on Mr. F. Tong's farm, at Preston, on a date to be fixed by himself."

**NEW MEMBERS.**—Messrs. J. Porter, H. J. Lee, G. H. Wing, and J. Yaxley.

January 16.

**PRESENT.**—Messrs. G. H. Wing (Chairman), W. E. Gillam, J. Yaxley, J. Porter, F. Tongs, J. Peebles, and R. G. Allison (Hon. Secretary).

**DISTRICT CONFERENCE.**—The following resolution, moved by Mr. J. Yaxley, was carried:—"That correspondence from the Director of Agriculture *in re* the representation of this Board at the conference to be held at Ulverstone, be procured, and that the Hon. Secretary reply to same." Mr. G. H. Wing was appointed as the Board's delegate to the conference.

**EXPERIMENTS.**—The subject of experiments in the growing of crops and fodder plants was discussed at some length, members being unanimously of opinion that it was a step in the right direction. The Board's delegate was instructed to recommend to the conference that experiments in the growing

of the following should be tried:—Lucerne (Mr. J. Yaxley offering to provide a piece of land), sugar-beet, *paspalum*, and linseed (the latter with a view to the production of flax).

**SUGAR-BEET GROWING.**—It was resolved, on the motion of Mr. W. E. Gillam, that Mr. R. G. Allison be requested to give his experience of sugar-beet growing.

### Springfield South, February 20.

**PRESENT.**—Messrs. W. W. Tankard (Chairman), A. Weir, O. W. Wilson, L. Berwick, B. Reynolds, and W. J. Cox (Hon. Secretary).

**NEW MEMBERS.**—Messrs. G. Linton and W. H. Robertson.

**USE OF STATE SCHOOL FOR MEETINGS.**—On the motion of Mr. B. Reynolds it was decided that the Secretary write to the Director for further information in regard to this matter, it being distinctly understood in the beginning that no charge would be made for the use of the school-room for these meetings.

**SPRINGFIELD TELEPHONE.**—At the Chairman's suggestion the Secretary was instructed to write to the Scottsdale Municipal Council (forwarding the request through Councillor Beattie), asking that the Council endeavour to have a proper room set apart for the instrument, as at the present time conversations, telegrams, &c., can be heard by anyone outside the building.

**DISCUSSIONS.**—The proposal to establish an interstate port at Bridport was discussed, also various matters relating to farming and grazing.

**MILK-TESTING DEMONSTRATION.**—At the conclusion of the business the Secretary gave a demonstration in milk-testing.

**VOTE OF THANKS.**—A hearty vote of thanks was accorded the Chairman for the use of his house for meetings, pending further advice *in re* use of school.

### St. Marys, February 18.

**PRESENT.**—Messrs. F. Napier (Chairman), J. Lohrey, Sen., W. McHugo, Dr. Harrison, Rev. T. Roberts, Col. Legge (Hon. Secretary), and one visitor.

**NEW MEMBERS.**—Messrs. McDermott, M. Wardlaw, F. Salter, Dodge, and Buttsworth.

**GEOLOGY.**—The Secretary explained that the Minister of Mines had given his sanction to Mr. Twelvetees visiting Mt. Elephant, and that Mr. Twelvetees had himself written to say that he would be glad to come as soon as his engagements permitted. He (the Secretary) had seen him in Sydney, and spoken to him of the visit, and was given to understand that it would be made as soon as possible. But he had heard nothing from him during the fortnight which had elapsed since his return from Australia. The matter should be pushed to a successful issue, as there was no doubt of the enormous deposit of valuable limestone around the whole base of Mt. Elephant. There was quite as much there as at Cole's Bay, and it was within 3 miles of the railway-station at St. Marys. A discussion took place, in which the Chairman and Dr. Harrison spoke in favour of the scheme.

**DISTRICT CONFERENCE.**—The Secretary read the memo. from the Organising Secretary, and asked that delegates might be chosen to go to Fingal to meet Mr. Benson. The Chairman laid the matter before the meeting, stating that he would be glad to accompany the Secretary. The following were chosen as delegates:—Rev. T. Roberts and Messrs. S. Speers, J. Becker, and W. King.

**BULLETIN.**—Dr. Harrison called attention to the valuable bulletins on diseases issued by Dr. Willmot, and thought that they should be sent to members of the Board. No one present but the Secretary had received a copy. The latter thought that when the Editor of the "Gazette" saw these minutes he would send out copies to members. Dr. Harrison thought that when the pamphlets were received the Board should make a point of specially discussing them.

**Table Cape, February 11.**

**PRESENT.**—Messrs. J. T. Johnson (Chairman), C. J. Mackenzie, J. T. Tyrrell, J. T. Ramskill, E. Addison, D. Bercheree, W. A. Lawrence, J. D. Telford, and H. J. Smith (Hon. Secretary).

**WEATHER AND CROPS.**—It was resolved that 15 minutes be devoted at each meeting to discussing crop prospects; the Secretary to compile a report for publication in the "Gazette."

**ANNUAL MEETING.**—Resolved, "That the annual meeting take place in December in each year, on a date not later than the 20th."

**POTATO TRADE.**—It was decided that a special meeting of members be called to discuss the condition of the potato trade, such meeting to take place on a date prior to the visit of the Director. References were made to the results of the spraying experiments on Mr. W. A. Lawrence's farm.

**FARM.**—Mr. J. T. Tyrrell read to the meeting the pamphlet by the Director of Agriculture on the proposed agricultural farm and school. A long discussion followed, the Chairman and Messrs. Tyrrell, Telford, Mackenzie, and Ramskill taking part. All the speakers were of opinion that some scheme combining the theoretical and practical was eminently desirable, but they feared that the proposed scheme was too expensive and elaborate for Tasmania.

**DISEASED POTATOES.**—Discussion took place on the treatment meted out to one of the members (Mr. D. Bercheree), in being summoned for removing his potatoes from Burnie wharf after infected potatoes had been found amongst them. The general opinion was that picking over on the wharf was the best way to spread the disease, and that in disposing of them the better plan was to cart them away immediately. It was decided to forward a protest to the Director of Agriculture.

**PAMPHLETS.**—It was resolved that the Director be requested, when forwarding any pamphlet for discussion by the Board, to send about a dozen copies of the same.

**Upper Mountain River, February 25.**

**PRESENT.**—Messrs. G. S. Parsons, A. Griffiths, L. Schmidt, W. H. Schmidt, Carl Schmidt, G. Oates, T. Banks, A. Moffat, E. H. Schmidt, and J. Stevenson.

**ELECTION OF OFFICERS.**—This being the first meeting of the Board, Mr. G. S. Parsons was voted to the chair, and Mr. A. Griffiths was appointed Hon. Secretary and Treasurer.

**RULES.**—Rules for regulating meetings were drawn up and adopted.

**SUBSCRIPTION.**—A levy of 1s. from each member was collected to defray expenses.

**NEW MEMBERS.**—On the application of Mr. J. Stevenson it was decided to admit Messrs. G. Oates and R. Schmidt as members of the Board, bringing the total number of names enrolled to nineteen.

**PRUNING.**—A short discussion was entered into *in re* fruit-tree pruning, and the meeting expressed itself in favour of a judicious system of pruning being adopted—to so balance the tree that the limbs be in that proportion to the roots that sufficient vigour be retained over and above that required for the maintenance of the tree to produce a normal crop of fruit.

**MANURING.**—The subject of manuring in conjunction with pruning was also taken up, but it was felt that the matter required maturer consideration, and it was left to be more fully discussed at some future meeting.

**NEXT MEETING.**—It was decided that the next meeting be held on April 1.

**West Scottsdale, February 15.**

**ATTENDANCE.**—Mr. R. Lester occupied the chair, and there was a very fair attendance.

**TURNIP-CULTIVATION.**—The subject for the evening was the cultivation of turnips, and a most interesting discussion took place.

## METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING FEBRUARY, 1911 AND 1910.

Station.	1911.	Wet Days.	1910.	Average.
<b>NORTHERN.</b>				
Marrawah ... ..	292	8	126	140
Cape Grim ... ..	270	9	100	146
Sunny Hills ... ..	—	—	116	—
Irish Town ... ..	586	13	106	—
Black River ... ..	—	—	40	140
Stanley ... ..	405	11	55	134
Flowerdale ... ..	403	12	31	—
Flowerdale, Upper ... ..	517	9	36	227
Yolla ... ..	723	12	56	162
Wynyard ... ..	358	12	20	—
Burnie ... ..	305	11	20	135
Ridgley ... ..	455	14	44	—
Ulverstone ... ..	276	10	32	153
Kindred ... ..	474	11	18	—
Devonport ... ..	230	11	16	184
Latrobe ... ..	—	—	21	135
Northdown ... ..	—	—	15	71
Beaconsfield ... ..	188	9	21	—
Low Head ... ..	179	10	37	110
Black Bluff ... ..	—	—	153	—
Moina ... ..	628	16	—	—
Gunn's Plains ... ..	—	—	—	285
Central Castra ... ..	—	—	26	168
Wilmot ... ..	553	12	—	—
Gawler ... ..	—	—	22	234
Sheffield ... ..	509	9	10	—
Deloraine ... ..	—	—	46	157
Caveside ... ..	455	12	14	128
Cressy ... ..	200	8	18	125
Longford ... ..	196	10	9	128
Evandale ... ..	—	—	13	—
Westbury ... ..	218	10	13	165
Westbury State School ... ..	—	—	13	—
Carrick ... ..	—	—	7	—
Launceston ... ..	242	10	3	109
Glengarry ... ..	347	11	10	170
Frankford ... ..	321	12	27	134
Exeter ... ..	267	9	7	—
Lilydale ... ..	—	—	16	109
St. Patrick's River ... ..	465	11	—	—
Springfield ... ..	359	12	42	172
Springfield South ... ..	346	12	21	—
Scottsdale ... ..	192	12	47	172
Brannholm ... ..	—	—	46	—
Ringarooma ... ..	285	10	44	188
<b>WEST COAST—MOUNTAIN REGION.</b>				
Whale's Head ... ..	—	—	63	—
Mt. Balfour ... ..	—	—	238	—
Magnet ... ..	*565	—	264	—
Waratah ... ..	*601	—	—	—
Que ... ..	473	13	—	—
Tullah ... ..	—	—	306	—

\* Telegraphic reports only.



## RAINFALL - continued.

Station.	1911.	Wet Days.	1910.	Average.
Mt. Read ... ..	523	18	492	604
Dundas ... ..	681	13	—	—
Zeehan ... ..	502	14	409	437
Mt. Lyell ... ..	512	12	513	576
Queenstown ... ..	521	10	135	—
Strahan ... ..	—	—	—	222
Cape Sorell ... ..	*456	—	172	268
Pillinger ... ..	192	9	347	—

## CENTRAL PLATEAU.

Great Lake ... ..	—	—	151	183
Circle ... ..	83	10	—	—
Steppes ... ..	166	8	—	—
Interlaken ... ..	—	—	—	231
Dog's Head ... ..	—	—	—	196

## DERWENT VALLEY.

Glenmark ... ..	—	—	65	—
Bashan ... ..	—	—	45	129
Osterley ... ..	107	5	—	—
Bothwell ... ..	—	8	46	112
Hamilton ... ..	168	11	22	109
Ellendale ... ..	161	7	83	193
Glenora ... ..	—	—	21	134
Belmont ... ..	—	—	—	123
Clarendon ... ..	211	5	12	126
New Norfolk ... ..	265	8	8	122
Uxbridge ... ..	252	7	55	205
Lachlan ... ..	293	7	24	173

## SOUTH-EASTERN.

Ramsgate ... ..	—	—	199	—
South Bruni ... ..	337	9	161	233
Adventure Bay ... ..	192	11	—	—
Southport ... ..	*388	—	169	209
Lunawanna ... ..	244	7	129	—
Port Esperance ... ..	—	—	92	206
Port Cygnet ... ..	*311	—	50	—
Petchey's Bay ... ..	353	12	42	—
Middleton Channel ... ..	186	12	96	—
Kettering ... ..	192	11	76	—
Franklin ... ..	—	—	—	191
Kingston ... ..	261	11	—	—
Mt. Nelson ... ..	276	9	57	152
Mt. Wellington (Gap) ... ..	419	14	104	319
The Springs ... ..	480	14	156	306
Hobart Observatory ... ..	227	13	37	148
Hobart Botanical Gardens ... ..	—	—	35	123
Hobart Waterworks ... ..	339	15	73	202
Glenorchy ... ..	251	7	45	168
New Town ... ..	—	—	—	162
Bellerive ... ..	264	10	30	143
Lindisfarne ... ..	252	7	38	—
Rokeby ... ..	265	7	59	143
Sandford ... ..	232	7	35	185
Premaydena ... ..	301	6	112	120
Carnarvon ... ..	288	11	167	218
Sorell ... ..	206	11	44	190
Cambridge ... ..	—	—	43	119

\* Telegraphic reports only.

## RAINFALL—continued.

Station.	1911.	Wet Days.		1910.	Average.	
Craigow ... ..	—	...	—	30	...	—
Richmond ... ..	—	...	—	49	...	137
Brighton ... ..	—	...	—	27	...	122
Tea Tree ... ..	296	...	9	37	...	—
Bagdad ... ..	—	...	—	30	...	145
Broadmarsh ... ..	—	...	—	15	...	—
Kempton ... ..	—	...	—	32	...	122
<b>MIDLAND.</b>						
Spring Hill ... ..	182	...	7	53	...	161
Jericho ... ..	252	...	8	45	...	—
Mt. Seymour ... ..	220	...	11	64	...	122
Oatlands ... ..	265	...	10	80	...	136
Andover ... ..	—	...	—	72	...	201
Woodbury ... ..	192	...	8	38	...	—
Beaufront (Ross) ... ..	252	...	8	11	...	105
Bendeemer ... ..	267	...	9	42	...	191
Glen Connell ... ..	226	...	8	10	...	178
Campbell Town ... ..	329	...	8	28	...	111
Hanleth ... ..	147	...	7	—	...	128
<b>EAST COAST.</b>						
Kellevie ... ..	268	...	12	92	...	—
Buckland ... ..	214	...	7	63	...	—
Triabunna ... ..	253	...	7	52	...	208
Swansea ... ..	289	...	11	9	...	137
Riversdale ... ..	—	...	—	23	...	168
Cranbrook ... ..	—	...	—	10	...	183
Lake Leake ... ..	—	...	—	36	...	171
Ormley ... ..	124	...	9	2	...	95
Fingal ... ..	—	...	—	—	...	143
Cullenswood ... ..	—	...	—	32	...	213
St. Marys ... ..	579	...	10	34	...	366
Mathinna ... ..	187	...	10	5	...	139
Scamander ... ..	—	...	—	41	...	155
St. Helens ... ..	252	...	11	51	...	187
Gould's Country ... ..	341	...	13	85	...	272
Lottah ... ..	452	...	18	122	...	484
Poimena ... ..	—	...	—	118	...	118
Eddystone Point ... ..	181	...	11	54	...	—
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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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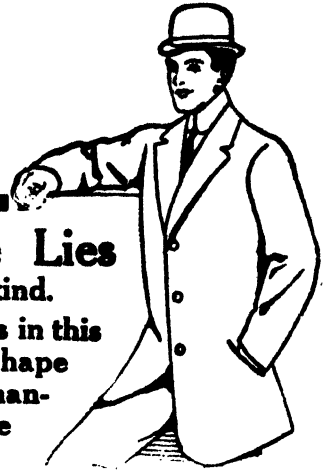
## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

The "Gazette" is sent free to all members of Boards of Agriculture. Any member not receiving a copy should communicate with the office at Hobart.

Correspondents are requested to send in matter not later than the 5th instant.



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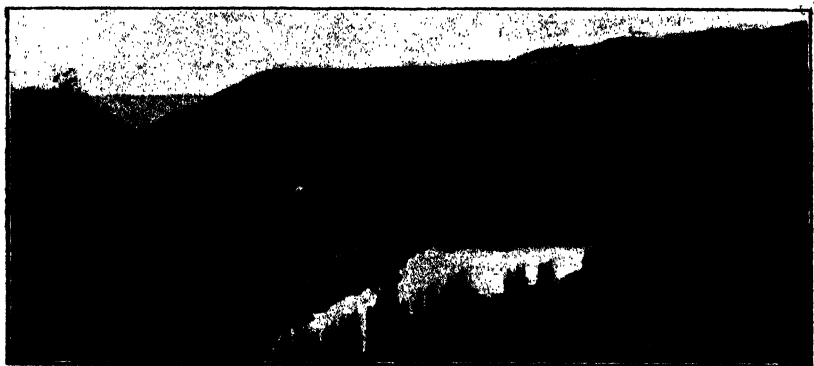
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TASMANIA.

NEW SERIES.  
VOL. XIX., No. 4.

APRIL, 1911.

PRICE  
THREEPENCE

## IN THE HEART OF THE PRIMEVAL FOREST.

A VISIT to Tyenna, which lies in the valley of the Russell River, is well worth the undertaking. There are great prospects for this part of the State. Four or 5 miles beyond Russell, which is the present terminus of the Derwent Valley line, brings one to the much-famed Russell Falls, which are rapidly gaining the attention of tourists from the mainland. About 5 miles further on is the settlement under consideration. The altitude of Tyenna is somewhere in the region of 700 feet. Hop-growing has, in a small way, engaged the attention of settlers, of which there are about 20 families. Enough can be seen to show that, as in most other parts of this State, fruit grows well, although the residents are exercised in their minds as to whether a 40-inch rainfall may cause trouble with "water-core" and fungus diseases. Tyenna is a very heavily-wooded district, as the accompanying photographs will show. It is a fine grass-growing country, where clearing has been accomplished, and it is through this channel that much of the wealth of the district is being secured. It is by way of Tyenna that an entrance is effected into the Florentine Valley. This area, according to a recent survey, contains 11,000 acres. The soil is said to be first-class, and the country more open than the Russell valley. When the proper exploitation of the Florentine Valley takes place and a railway extends from Russell through Tyenna another large area of fertile



country will be available for settlement. Dairying and fruitgrowing will lead the van, but fine specimens of potatoes were seen, and there is no doubt that with good land and a heavy rainfall most systems of agriculture will find favour. The district of Tyenna is at present in a very undeveloped condition, there being no hall or State school, although the latter is about to be erected. Last month the Dairy Expert (Mr. A. Conlon) and the writer paid a visit to Tyenna. The residents displayed a keen interest in the work of the Department, and a Board of Agriculture was formed. The illustration accompanying this article gives some idea of the clearing to be done, and shows a three-year-old orchard of 2 acres in extent planted by the late W. R. Pitfield, district surveyor. The trees are making rapid growth, and an illustration



*A Settler's Home at Tyenna.*

of the Horticultural Expert's system of summer pruning was given. Although at present a very young country as regards settlement, there is no doubt that when proper access to the Florentine is provided, with the aid of the Russell Falls as an attraction, the true merits of this part of Tasmania from an agricultural standpoint will be appreciated by visitors from other parts.

## HUMUS IN ITS RELATION TO SOIL FERTILITY.

THE brown or black organic matter of surface soils is known as humus, and is derived from several compounds resulting from the decay of both vegetables and animals. The last result of the fermentation of organic matter, whether vegetable or animal, is a few gases and a little mineral

matter. The intermediate disorganised mass which gives the upper portion of the soil its dark colour is what we recognise as humus. Humus always contains nitrogen. Its amount will vary according to its age; in rich pastures it will run from  $\frac{1}{4}$  to  $\frac{1}{2}$  per cent., whilst in arable land it is only present to the extent of  $\frac{1}{10}$  of 1 per cent. When land is first brought under cultivation after being cleared of its timber it possesses a spongy texture, and is found to be more or less fertile, and adapted to the growth of such crops as potatoes and oats. As time progresses the physical condition of the soil gradually changes, and a new series of crops takes the place of those grown on the virgin land. This rotation is brought about by the oxidation of the organic matter, or loss of humus. Many and varied were the theories held as regards the useful-



*A Young Orchard at Tyenna.*

ness of vegetable matter in soils by the early chemists. Some thought that humus was the principal source of the nutritive material of plants. When later writers showed that the organic matter of plants came from outside the soil (*i.e.*, that the carbon of the atmosphere and moisture furnished it), the value of humus was not held to be of much importance.

Although the true explanation of the part played by humus was not forthcoming in the earlier times, practical men noticed that soils possessing a high content of vegetable matter and those which were well dressed with the excrement of farm animals were inevitably fertile. We now know the reasons of this, the principal ones being the supply of nitrogen furnished by humus, its moisture-holding capacity, and the comparative ease with which soils can be brought into a condition of

fine tilth. Humus has other properties of value, such as rendering available the mineral matter of the soil, resulting in a class of compounds called humates, besides warming a soil, by reason of its dark colour absorbing the sun's rays. A heavy clay soil can be lightened by incorporating vegetable matter with it, and the reverse is the case when a sandy soil liable to be shifted by the wind is treated to an application of farmyard manure, or green crops are ploughed under.

From the foregoing it can be readily seen that instead of following a system of farming resulting in an annual decrease of vegetable matter in the soil, it should be the cultivator's sustained wish to preserve, if not increase, the amount of humus. Of course, he will have to be guided by other factors prevailing, because unless the conditions are such that vegetable matter in the soil undergoes gradual decomposition and furnishes its component parts for the nutrition of the plant, changes of a character inimical to plant-growth may arise. If the soil is not well drained, and lacks basic substances, such as lime, the temperature will be low, and decomposition products of an acid character formed, or the soil will be what is commonly called sour.

When the soil is properly drained, naturally or otherwise, and a fair proportion of lime is present, the amount of humus cannot well be too great, and those systems of farming, which, if they do not increase the quantity at least conserve it, are to be commended.

The decline in the crop-producing power can be traced in many soils to the exhaustion of the vegetable matter. The nature of the crops grown is, of course, an important factor in influencing this ingredient. Potatoes and such crops, as also cereals, leave not too much of root residue. Hence many soils on our North-West Coast show visible signs of deterioration, simply because no effort has been made at a rotation of crops, and the interpolation of clovers and other members of the leguminous order.

The main requirements of any dogs for working cattle are that they should be steady, game, faithful, enduring, and intelligent.

Millions of trees should be planted throughout our midlands to act as breakwinds and increase the production on our farms, both in respect to stock and crop.

The regulation, proper distribution, and utilisation of the rain-water—water management—is to be the great problem of successful agriculture in the future. One of the most powerful means for such water management lies in the proper distribution and maintenance of forest areas, nay, we can say that the most successful water management is not possible without forest management.—[FURNOW.]

Subsoiling when properly done consists merely of breaking up the subsoil without bringing it to the surface or in any way incorporating it with the upper layer of the soil. To be efficient, it should be done a sufficient length of time before the crops are planted, to ensure to the soil a thorough soaking with rain, otherwise it may injure rather than improve the soil conditions for the first year.

## CONFERENCE OF DISTRICT BOARDS OF AGRICULTURE.

Held at Smithton, Friday, March 24.

A CONFERENCE of representatives of the Boards of Agriculture to the west of Stanley was held in Morton's Buildings, Smithton, on the above date.

The Director of Agriculture (Mr. A. H. Benson) presided, and there were present Messrs. E. L. Smith, G. McPhail, J. W. Hamilton, G. H. Boatwright, A. Butterworth, A. Champion, W. Geale, W. Poke, Sen., G. Brumby, M. Smith, S. Moore, W. Reid, A. E. Thorne, T. Wilkins, S. Wilkins, A. H. Heathorn, J. E. Lee, W. Groom, and J. Zimmerman. The editor of the "Agricultural Gazette" (Mr. L. A. Evans) was also present.

The Director of Agriculture welcomed those present, and said his desire was to resuscitate all the old Boards of Agriculture as well as create fresh ones in each centre, and in this way get into touch with farmers. By this means he would be able to learn in what manner the Department could best help the man on the land. Farmers should be alive to their own interests, and organise themselves. It would be the policy of the Department in future, where Boards of Agriculture existed, to regard the local authority as the branch of the Department, and all correspondence would go through the Board, and all applications for the experts' services, if not made through the Board, would be referred to the local body for approval. In the same way the requirements of any district or any information desired could be obtained if the farmers were linked up with the central authority. As to the nature of co-operation, he instanced what had been done in this respect in Denmark, and stated that that country had been lifted from a poor condition to a high state of prosperity, mainly through co-operation in the manufacture and sale of dairy products, &c. With regard to the "Dairy Act," he desired to inform those present that this legislation was intended not to interfere with or hamper the progressive dairyman, but in the cases of dirty dairies the owner would be advised by experts what lines to go on so as not to hamper the industry, and thus improve the quality of his cream, &c. In this way it was hoped that the education obtained as a result of the introduction of the Act would help to raise the standard of dairy products in this State.

He further intimated that it was his desire to learn the nature of experiments which could be carried out in the different centres, and in this way improve pastures, cereals, and other farm crops. The value of green-manuring could be demonstrated if the Boards so desired, and the details of the work would be left to each branch to define, the Department not wishing to dictate, but simply provide the necessary material, and, if required, furnish expert or other advice.

The Director said that the prospects of dairying going ahead in their part of Tasmania seemed good, and he wished to find out in what way the Department could be of assistance.

The meeting then became a conversational one, the consensus of opinion undoubtedly being that more dairy heifers were required. It was considered that the present quarantine regulations should be altered, so that dairymen could purchase cattle of a milking strain from clean herds in Victoria without the expense attached to the present period of detention. One speaker was of opinion that, in respect to the purchase of both dairy stock and pigs, the farmer was not in a position to buy without State aid.

The opinion was generally expressed that a digest of the "Dairy Act" and regulations should be made and published in the "Gazette."

On the motion of Mr. Hamilton, a vote of thanks to the Director and Mr. Evans was unanimously carried.

#### Held at Wynyard, Saturday, March 25.

A conference between the Director of Agriculture (Mr. A. H. Benson) and representatives of the Table Cape and Emu Bay Boards of Agriculture took place at the State School, Wynyard, on the above date. Mr. Benson was accompanied by Mr. L. A. Evans (Agricultural Organiser), and the following Boards were represented:—Flowerdale, Mr. J. A. Smith; Mooreville-road, Mr. R. Laird; Yolla, Messrs. D. Jones and J. Hyland; Table Cape, Messrs. H. Smith, J. D. Telford, J. Johnston, W. Lee, E. Cooper, J. Gates, T. U. Duniam, T. Kelly, W. Medwin, W. A. Lawrence, G. King, M. Cullen, L. Poke, and Capt. Thompson; Ridgley, Mr. W. Morris; Elliott, Messrs. L. Shepherd and W. Wyllie.

Mr. Jas. Belton, M.H.A., presided, and introduced the Director to the meeting.

#### MR. BENSON'S ADDRESS.

Mr. Benson said that he wished to get into touch with the farmers, and the meeting was a continuation of the work started in the formation of Boards of Agriculture carried out by Mr. Evans. Unless the farmers were banded together and connected with the Department their wants were sure to be ignored. At the recent conference of Ministers of Agriculture held in Melbourne the fruitgrowers, who had representation from all the States except Queensland, submitted many proposals and got several valuable concessions, but there was not a single farmer present to stand up for their industry, and consequently the requirements of the farmers were not put forward. He had fought for the potatogrowers, and the only result was the abolition of the potatogrowers' declaration.

Dealing with co-operation, Mr. Benson said that in 1888 there was in California an absolute over-production of raisins, with the result that prices fell to starvation rates. Then the raisingrowers combined, and to-day the output of dried and fresh fruits was ten times what it was

in 1888, and the price was higher. The result also was that fruit was sold to the best advantage. Denmark 40 years ago was a poverty-stricken country, but to-day there was not a more thrifty and prosperous community than the Danes. If Denmark could do so much, why could not Tasmania co-operate? They had their little butter factories, which would be big later on, and contained elements of great future value to the North-West Coast. Not many years ago a start was made with dairying on the north-west coast of New South Wales. Paspalum was sown, and to-day the Byron Bay factory paid from £30,000 to £40,000 per month for cream. That was as good as the Tasmanian potato industry, and in the district named there were 100,000 cows. He urged the formation of farmers' clubs similar to the system adopted in America. Their Boards of Agriculture could be made to do duty for social purposes as well. He wanted to know the farmers and to get acquainted with their requirements. He was not going to work behind their backs. He was not going to act without the co-operation of the farming class. "The Dairy Act," which was first referred to the industries concerned, had gone through Parliament without the dotting of an "i" or the crossing of a "t" in the way of alterations—that Act would do much good for the industry. It would be hard on the lazy and careless, but it would assist the industry and the man who was working on correct lines. He was anxious to get the farmers to back him up in his work in a way not done hitherto. for he recognised there had been too much theory in the past in Tasmania. He purposed, with the assistance of Mr. Belton and other members, to carry out a series of experiments. He wanted the money voted to pay for these experiments, and he knew their chairman for one member would assist him. He outlined what he meant. Suppose a certain disease broke out in a district, he would ask some farmer to undertake an experiment under the local Board of Agriculture, and under the supervision of an officer of the Department of Agriculture. There might be a disease in the pea crops, for instance, and the Board might decide it was desirable to conduct experiments to cope with it. Then the Department would send along an officer. Much good would result from practical experiments. There might be failure, but it was the mistakes of some that made the success of others. He was anxious to know whether experiments in manuring, in dealing with diseases, &c., had their concurrence? When he was travelling with the Scotch farmers he learned that Tasmanian farmers complained that they grew up to 20 tons of potatoes to the acre years ago, but could not do it now. They had taken the humus out of the land. When land lost its excess of humus it could not give the same result from artificial manures as if the humus was present in the soil, for the humus enabled the different plant foods to be made available. It was not that the soil was worked out, very often, that caused inferior crops, but it was the absence of organic matter. In the Old Country the straw was always put back on the land in the form of dung. Unfortunately in Tasmania they had not the same com-

mand of dung. The ploughing in of peas and of some kinds of clovers, &c., was good for the soil. If the farmers wanted the experiments he spoke of he was willing to go ahead. Of course, if the farmers did not want assistance in this way the Department would do something else. He urged them to combine in their own interests. In conclusion, he invited an expression of farmers' views.

#### POTATO-SPRAYING.

Mr. Belton thought everyone representing the farmers would like to hear the views of the men affected. He knew that when Bills were going through Parliament members liked very much to hear what the persons interested thought. He referred to the experience at Mildura many years ago, which justified the advantages of organisation. He endorsed the Director's request for a "homely chat."

Mr. J. J. Johnston (Warden of Table Cape) asked Mr. Benson whether his Department intended to make spraying compulsory.

Mr. Benson said the Ministers of Agriculture agreed to the carrying out of experiments in spraying with the view of making it compulsory. He believed the Tasmanian intention was to make spraying compulsory—perhaps not absolutely so. The experience of the world showed that spraying paid the farmer. The United States experiments proved the efficacy of spraying, and a profit was left after five sprayings of 30s. per acre. In Ireland spraying was the rule. In Tasmania he felt some farmers would need no compulsion, as effective and proper spraying had proved successful last season. Spraying was in force in Jersey, in Germany, and in England. It was not an absolute cure, but it would reduce their loss to a minimum. He related the experience detailed by Mr. H. F. Ford, as published recently in the "Advocate" and "Times." Mr. Ford had gone in for spraying on his (Mr. Benson's) advice, and was thoroughly satisfied with it. It would come to this: That the farmer must spray or go out of the business. The question would be fought out doubtless in another place. Spraying had paid the fruit men, and it would pay the potatogrower. The increased crop they got for spraying would alone pay for the cost, and the Ministers in Melbourne were unanimous in favour of trying experiments. Potato blight was dependent on the seasons, and next year there may be none.

Mr. Lee said they would be willing to spray if they could be convinced it was any good. His experience was against it.

Mr. Lawrence said that 99 per cent. of his potatoes were fit to dig. They were sprayed properly under Mr. A. M. Lea's supervision. He had tried the paddock which was sprayed and found the potatoes to be clean.

Mr. Telford was willing to wager a five-pound note that the whole of Mr. Lawrence's paddock had the blight.

Mr. Lawrence: The bottoms have not got it.

Mr. Telford would like Mr. Benson to inspect the crop and see whether it was not badly infected.

Mr. Laird said he had made numerous experiments with the blight, and he could say that by treating the potatoes properly coastal farmers could grow them thoroughly clean. He would say that the potatoes should be sprayed twice, the second time with bluestone water alone. There was nothing surer than that spraying would prove the salvation of the crop.

Mr. Telford: The country is getting over-run by inspectors, and I will sell out if this legislation is carried.

Mr. Belton pointed out that the Government did not propose to make spraying compulsory until its efficacy had been demonstrated. He agreed to an extent with Mr. Telford that the efficacy of spraying should be first demonstrated.

Mr. Benson said he wanted further demonstrations carried out. He hoped in future to have a thorough experiment in regard to spraying paddocks right from the start, including the treatment of seed. They would treat some seed and leave other portions untreated. They would spray some portions of the paddock oftener than others. Unfortunately some of the machines used by the Department were not the best. He was hoping to arrange with Messrs. Finlayson Bros. or some other Tasmanian firm to turn out sprayers much cheaper than the present price. If the majority of farmers were not convinced he would not favour forcing them to spray.

Mr. E. Cooper testified to the value of spraying. His son and a neighbour, Mr. Shepherd, had sprayed and saved their potatoes, and others who had not sprayed had suffered. His son had sprayed three times. They noticed that where a strip was missed there was a marked difference in the crop. Mr. Laird was quite right regarding the subsequent application of bluestone water.

Captain Thompson did not think the test made on Mr. Lawrence's farm fair to spraying, as a patch had been left unsprayed.

Mr. Benson said the whole thing would be discussed at a conference in Launceston in June, when the final results would be known.

Mr. Wyllie said the Elliott Board of Agriculture was thoroughly in favour of spraying.

Warden Johnston agreed that spraying was generally recognised to be of some advantage, but what they objected to was compulsion, for this was the first step to confiscation. It was not British fair play.

#### STOCK QUARANTINE.

Mr. Benson said he would like to refer to another matter. Were they satisfied with the quarantine restriction?

Voices: No.

Mr. Benson said he had seen hundreds of acres of magnificent clover going to waste on King Island, and he urged the need for lessening the restrictions on the introduction of dairying stock. It was for them to decide whether they wanted more dairy heifers, and if so, were they prepared to run ordinary business risks to get sound young heifers into



Tasmania without quarantine? He considered the dairying industry had a great future before it. His proposal was to introduce absolutely sound heifers from sound herds in sound districts on the mainland. Were they afraid of it?

Voices: No.

Mr. Benson said their present 90 days' quarantine period was not a guarantee to them against pleuro-pneumonia. In the old days they did not know how to treat pleuro, but this had been all changed. He was told by one person at the Wynyard show that there were more good heifers to be purchased locally than there was sale for. Was that so?

Voices: Where?

Mr. Benson said he was told in their own district.

Mr. Telford said he would like to see quarantine abolished altogether, except with the restrictions mentioned by Mr. Benson.

Mr. Belton trusted they would give this question consideration. There was a strong feeling against the present restrictions in King Island. There was a strong desire on the part of the North-West Coast to develop the dairy industry, and he favoured the proposal recommended by Mr. Benson. The production per cow in Tasmania was absurdly low. He was years ago dairy-farming in the Euroa district in Victoria, and he had never seen a "pleuro" beast. They never thought of the danger of introducing the disease, and did not hesitate to buy a beast in distant markets. Many regarded with needless alarm the dangers of pleuro-pneumonia.

Mr. Newton favoured feeding cows artificially in winter in order that the production of milk may be increased.

Mr. Benson said when they began to dairy properly they would not dairy for six months, but for the year.

Capt. Thompson inquired whether the admission of half a dozen bulls would not do, as being safer and just as effective as introducing 300 heifers?

Mr. Benson said he would like their opinion on the whole subject. The heifers he proposed to introduce would be for dairying. Dealers would get no facilities.

Mr. Jones moved—"That this conference heartily endorses the scheme put forward by the Director of Agriculture." He had for a long time been advocating a lessening of the restrictions.

Mr. Telford seconded the motion, and said he would like to have the opportunity of securing a wider market for the purchase of dairy heifers.

Mr. Morris favoured the doing away of quarantine altogether.

The motion was carried unanimously.

The Warden moved a hearty vote of thanks to the Director for his lucid address and explanations. Mr. J. Hyland seconded, and as a representative of a butter factory company he would like Mr. Benson to try and secure for Tasmanian factories recognition for their exported butter as Tasmanian production. The motion was carried by acclamation.

## “THE DAIRY PRODUCE ACT, 1910.”

### A FORWARD MOVEMENT.

**T**HE provisions of the above Act came into force on the 1st January of this year.

The Act does not apply to any case where dairy produce is intended for the use of any owner for consumption on his premises and is not sold or offered or exposed for sale to the public. The Act does not deal with vendors of milk, who come under “The Health Act.” The main desire is to raise the standard of the butter and cheese manufactured for export.

### REGULATIONS UNDER “THE DAIRY PRODUCE ACT, 1910.”

The following regulations have been made under the Act:—

1. In these regulations, unless the contrary intention appears—

“The Act” means “The Dairy Produce Act, 1910.”

“Director” and “Owner” respectively have the meanings assigned to them by the Act.

2. Applications for the registration of dairies and factories shall be in the forms contained in Schedules A and B respectively. The certificate of registration shall be in the form contained in Schedule C.

3. In the event of any change of ownership of a dairy or factory notice thereof, stating the full name and postal address of the new owner, shall be given forthwith by the registered owner to the Director.

4. Postage stamps will in no case be accepted in payment of fees due under the Act or these regulations.

#### *Cleansing of Utensils.*

5. The separator-bowl and all parts of the separator which come into contact with milk shall be thoroughly cleansed on each occasion immediately after the process of separating—first by immersion in cold water, and then cleansed by steam or boiling water, and all dairy utensils shall be promptly cleansed in the same manner.

6. All vessels used for carrying milk or cream to a dairy or factory shall, before being taken away from such dairy or factory, be cleansed by cold water, and then by steam or boiling water, and, where practicable, thoroughly aired. Before clean utensils, brought from a dairy or factory, are refilled with milk or cream they shall be rinsed out with clean water and aired.

#### *Separate Utensils to be used for Conveyance of Whey.*

7. No whey shall be removed from a factory in any vessel which is used for the carriage of milk or cream.

#### *Conveyances and Utensils to be Protected from the Heat of the Sun.*

8. All conveyances used for the carting of milk or cream to a dairy or factory shall be provided with a cover to ensure effectual protection from

the heat of the sun. All vessels, when actually containing milk or cream, shall be effectually protected from the heat of the sun.

*Disposal of Manure.*

9. Every cow-bail shall be kept clean, and the droppings of cows shall be gathered after each milking and removed to a manure heap, which shall be at least 100 feet away from the bails.

*Milking Bails or Sheds.*

10. Every owner of a dairy shall cause the cow-bails and sheds used in connection with such dairy to be covered with a roof that is weather-proof, and to be constructed at least 7 feet in height above the floor-level, and to be lighted and ventilated to the satisfaction of the Director. He shall also cause the floor of such bails or sheds to be constructed of a durable non-absorbent material, laid in such a manner as to be water-tight, and graded with a slope to an open drain running the full length of the building, and of such a width as to be capable of being swept with a broom; and shall cause it to be continued for a distance of at least 30 feet beyond the confines of the cow-bails or sheds.

11. The ceiling or interior of the roof and the walls of every cow-bail or shed shall be properly lime-washed at least twice in every year—once during the month of September, and once during the month of March, and at such other times as may be ordered by the Director or by a supervisor or other person duly authorised by the Director.

*Cleanliness of Udders, &c., at Time of Milking.*

12. At the time of milking the udders and teats of all cows shall be thoroughly cleansed, and the hands of the person employed in milking shall be thoroughly clean.

*No Inlets to Drains or Gully-traps.*

13. No inlet to a drain or gully-trap shall be kept within a dairy or factory.

*Coppers not to be used for other Purposes.*

14. Coppers used for boiling water or cleansing cans and other dairy utensils shall not be used for any other purpose, except with the approval of a supervisor.

15. Every owner of a dairy shall cause all liquid manure from the milking-sheds and cow-bails to be drained into a suitable receptacle approved by a supervisor.

16. No fowls shall be kept nor poultry-houses erected within 30 feet of a cow-bail in any dairy.

17. No milking-shed in any dairy shall be within 100 feet from any piggery, earth-closet, or cesspit, unless under special circumstances approved of by a supervisor.

18. No earth-closet or other sanitary convenience shall, except with the permission of a supervisor, be within 30 feet of any separator-room, milk-room, or room used for the storage of dairy produce.

19. The owner of a dairy or factory shall not permit any person suffering from diphtheria, scarlet fever, smallpox, or typhoid fever to handle cattle or work in the dairy or factory.

20. No person suffering from a contagious skin affection, such as "itch," or any venereal complaint, or who has any unclean or medicated bandage upon his person, shall be employed in handling cattle, or milk, cream, butter, or other dairy produce; or in handling any utensils used in the production or manufacture of such produce.

21. Every owner of a dairy shall cause every stable and yard used in connection with such dairy to be well drained.

22. No owner of a dairy shall permit any animals, except milk-cows, to be stabled or kept within 30 feet of the milking-shed or cow-bail, or milk-room, or permit pigs to be kept within 100 feet of a dairy.

23. If, after the inspection of a dairy herd, a supervisor is of opinion, or has reason to suspect, that any stock in such herd are diseased, he shall, in writing, order the owner to at once isolate such stock from the remainder of the herd, and shall then proceed to make the necessary test to detect the presence or otherwise of disease. At all such tests the owner shall be entitled to be present, and a report of such inspection shall be sent forthwith by the supervisor to the Director; and a copy of such report shall at the same time be given by the supervisor to the owner. If the Director is satisfied upon such report that the stock the subject-matter of such report, or any of them, are diseased, he shall forthwith order the same to be destroyed, and they shall forthwith be destroyed by the owner under the direction of a supervisor.

24. The owner of any animals isolated under the last preceding regulation shall (if so required by a supervisor) tag, brand, or otherwise mark any isolated animal for the purpose of identification.

25. Every owner of a dairy shall keep in connection with such dairy an abundant supply of wholesome water. Dairy cows belonging to a dairy shall not have access to impure water or to any rubbish or refuse.

26. The owner of every dairy shall cause every tank or other receptacle which may be provided for storing water to be supplied and cleansed from time to time as often as may be deemed necessary by a supervisor to prevent contamination of any water that may be stored therein.

27. Any supervisor may take samples of water used by dairy cattle for drinking purposes, or used in the manufacture of dairy produce, and may forward same, sealed, to an expert for his report.

28. No such sample shall be taken or sealed before the owner of the dairy from which the sample is taken is afforded a reasonable opportunity of being present.

#### *Registration of Marks.*

29. A register of marks used by factories for dairy produce shall be kept by the Director, and any owner desiring the registration of a mark

shall forward to the Director an application in the form contained in Schedule D hereto, together with three copies of the mark which it is desired shall be registered.

30. No mark shall be registered which is identical with one already on the register, or which bears such resemblance to a mark already on the register that in the opinion of the Director it may be calculated to deceive.

31. If the owner of a mark desires to transfer the same to any other person he may do so upon written application to the Director, signed by the owner and intended transferee.

32. The registration of any mark may be cancelled when it has been proved to the satisfaction of the Director—

(a) That it is no longer in use by the owner thereof; or

(b) That the owner has died or permanently left State without taking the necessary steps to transfer the same.

33. The register of marks shall be open to the inspection of any person upon payment of the sum of One Shilling.

34. The register of marks shall contain the following particulars:—

(a) Number of registration mark.

(b) Date of application for registration.

(c) Date of registration.

(d) Name and address of the owner of the mark.

(e) A correct copy or representation of the mark.

35. The fee for the registration shall be Five Shillings.

*Standardisation of Milk and Cream Testing Appliances and Acids;  
System of Weighing Milk and Cream; Taking Samples and Reading  
Tests.*

36. The measure used or the purpose of taking samples of milk for testing by the Babcock method for butter-fat contents shall be the pipette measure graduated to hold 17·6 cubic centimetres of milk, and must be tapered at the outlet to give an internal diameter not exceeding 3·32nds of an inch at the point.

37. The weights used for weighing samples of cream for testing by the Babcock method for butter-fat contents shall be 9 grammes.

38. The Babcock test-bottles used for milk-testing shall be graduated so as to contain 6 cubic centimetres, or 1·8 grammes between zero and 10 per cent.; and each percentage and decimal part thereof shall be accurately marked, according to its holding capacity.

39. The Babcock test-bottles used for cream-testing shall be graduated so as to contain 6 cubic centimetres, or 5·4 grammes between zero and 30 per cent.; and each percentage and decimal part thereof shall be accurately marked, according to its holding capacity.

40. The specific gravity of the sulphuric acid for use with the Babcock test shall be 1·827, at a temperature of 60 degrees Fah.

41. The pipette used for the purpose of taking samples of milk for testing by the Gerber method for butter-fat contents shall be graduated to hold 11 cubic centimetres of milk.

42. The weight used for weighing samples of cream for testing by the Gerber method for butter-fat contents shall be 5 grammes.

43. The Gerber test-bottles used for testing milk shall be graduated so as to contain 1·125 cubic centimetres, or 1·0125 grammes between zero mark and 9 per cent.; and each percentage and decimal part thereof which is marked shall be accurate, according to its holding capacity.

44. The Gerber test-bottles used for testing cream shall be graduated so as to contain 5·55 cubic centimetres or 5 grammes between the zero mark and 100 per cent.; and each percentage of a decimal part thereof which is marked shall be accurate, according to its holding capacity.

45. The specific gravity of sulphuric acid used for the Gerber test shall not be less than 1·820, nor greater than 1·825, at a temperature of 60 degrees Fah.

46. The amyl alcohol for use with the Gerber test shall be fat-free, and have a specific gravity of ·815 at 60 degrees Fah.

47. All milk or cream purchased for the purpose of manufacture into butter, cheese, condensed milk, concentrated milk, or dried milk shall be weighed, and not measured by the gallon or part thereof.

48. The sample of milk or cream secured for testing by the Babcock or Gerber methods for its butter-fat contents shall be taken in such a way as to represent the average conditions and specific gravity of the whole; and in the case of cream shall be weighed by the weights, and in the case of milk be measured by the measures, hereinbefore specified in Regulations Nos. 36 and 37.

49. The reading of the fat shall be made at a temperature of between 120 degrees and 140 degrees Fah.

#### *Supervisor Order.*

50. The order of a supervisor shall be in the form contained in Schedule E.

#### *Annual Return.*

51. The form of annual return required by Section 20 of the Act shall be in the form contained in Schedule F hereto.

#### *Offences.*

52. The owner of any dairy or factory who, by any act or omission, is guilty of, or who permits or suffers, any contravention of these regulations, shall be liable to a penalty not exceeding Ten Pounds.

## SCHEDULE A.

*"The Dairy Produce Act, 1910."*

## APPLICATION FOR REGISTRATION OF A DAIRY.

(Section 5, Subsection 7.)

To the Director of Agriculture.

Sir,

I, \_\_\_\_\_, hereby make application for registration of the dairy, particulars whereof are as under, for the year ending 31st December, 19 \_\_\_\_.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_.  
(Signature of Owner, Agent, or Manager.)

*Particulars.*

Situation of dairy, stating the name of the municipality .....  
The name of the nearest railway-station to the dairy .....  
Full name and postal address of the owner or owners of the dairy .....  
Total number of cows milked during the season ending .....  
Milk and dairy produce, how disposed of .....  
Acreage and varieties of fodders grown for feeding cows .....  
Number of deaths of dairy cows during past year and causes of death, if known .....

## SCHEDULE B.

*"The Dairy Produce Act, 1910."*

## APPLICATION FOR REGISTRATION OF A FACTORY.

(Section 5, Subsection 7.)

To the Director of Agriculture.

Sir,

I HEREBY make application for the registration of the factory, particulars whereof are hereunder set forth, for the year ending 31st December, 19 \_\_\_\_, and I enclose herewith the sum of £1 registration fee.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_.  
(Signature of Owner, Agent, or Manager.)

*Particulars.*

1. Name and postal address of owner of factory .....
2. Postal address .....
3. Situation of dairy, stating name of the municipality .....
4. The name of the railway-station nearest to the factory .....
5. Distinguishing marks used by factory upon dairy produce manufactured therein, with full particulars as to classification .....

SCHEDULE C.

"The Dairy Produce Act, 1910."

CERTIFICATE OF REGISTRATION.

(Section 5, Subsection 7.)

I HEREBY certify that the\* , the particulars whereof are described in the schedule hereto, has been duly registered in accordance with the provisions of "The Dairy Produce Act, 1910."

Dated this day of , 19 .

Director of Agriculture.

\* Dairy or factory.

Schedule.

Name in full and postal address of owner .....

Name (if any) of factory, and where situate .....

SCHEDULE D.

"The Dairy Produce Act, 1910."

APPLICATION FOR REGISTRATION OF MARKS.

(Section 5, Subsection 7.)

To the Director of Agriculture, Hobart.

Sir,

I HEREBY make application for registration of the marks, of which three copies are forwarded herewith.

Here state—

1. Description or mark. Classification.

(a)

(b)

(c)

Name in full of the owner of the factory .....

Postal address of owner .....

Name (if any) of the factory .....

Name of the railway-station nearest to the factory .....

Trade description of factory .....

I enclose herewith the sum of £s. registration fee.

Dated this day of , 19 .

(Signature of Owner, Agent, or Manager.)

SCHEDULE E.

"The Dairy Produce Act, 1910."

ORDER OF SUPERVISOR.

TAKE notice that and you are hereby ordered to within days after the service upon you of this notice.

Dated this day of , 19 .

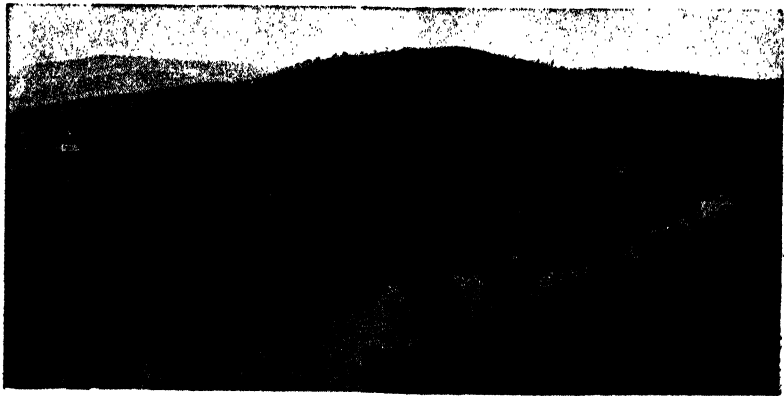
Supervisor.



SCHEDULE F.  
"The Dairy Produce Act, 1910."  
ANNUAL RETURN BY FACTORY OWNER FOR THE YEAR IMMEDIATELY  
PRECEDING THE 30TH JUNE, 19 .  
(Section 20.)

Trade name (if any) and situation of factory.	Total number of persons who have sup- plied milk and cream during the year.	Total quan- tity, in pounds, of milk pur- chased during the year.	Total quan- tity, in pounds, of cream pur- chased during the year.	Total quan- tity, in tons, of butter manufac- tured during the year.	Total quan- tity, in tons, of cheese manufac- tured during the year.

I hereby certify that the above is a true and correct statement.  
Dated at , this , 19 .  
(Signature of Owner, Agent, or Manager.)



Orchards and River Derwent, near Glenora.

## FRUIT-CULTURE IN TASMANIA.

By JOHN OSBORNE, JUN., Horticultural Instructor.

THE fruitgrower seeking land outside the more settled districts has a wide field open to him, there being thousands of acres of suitable country available in different parts of the State, and in most cases easy of access to rail or steamer.

Land may be purchased from the Crown, also from persons having partly improved properties to dispose of. Where possible, a situation that will ensure an easy or ready access to the chief shipping centres should be secured, water carriage being chosen if available.

Much good land is to be found on Bruny Island in the south, Tasman Peninsula in the south-east, Judbury, Russell, Weld, and Denison Valleys in the west, and at Glen Huon also. South and west of Geeveston, and extending for some distance, are large areas eminently suited to fruit-culture awaiting selection. Growers in these districts rely on the river steamers to convey their fruit to a shipping centre, the cost in freight amounting to 3½d. per case. Where orchards are from 3 to 7 miles from the jetty, strong four-wheeled wagons, capable of carrying from 70 to 100 cases in each load, are used to convey the fruit from the apple-house to the waterside. In many cases these wagons take two loads per day.

The land in the districts mentioned is heavily timbered, chiefly with stringy-bark (*Eucalyptus obliqua*), the cost of clearing ranging from £10 to £25 per acre. In the stringy-bark country the soil is usually a light loam overlying a rich, friable clay, that provides ideal conditions for the apple and pear. Owing to the presence of dense forests there is an ample supply of moisture, the average rainfall on Bruny Island for 39 years being 39·16 inches, and for Franklin district (for 15 years), 33·29 inches.

If purchased from the Crown the land will cost from 10s. to 20s. per acre; survey fee (up to and including 25 acres, £4 10s.) to be added. Fencing (plain wire) will cost about 8s. 9d. per chain, the posts and droppers being obtained on the selection. Rabbit-proof fences (six-wire, netting 3 feet 6 inches) will cost from £21 to £30 per mile to erect. Ploughing preparatory to planting will cost from 12s. to 15s. per acre.

If planted 16 feet 6 inches apart, 160 trees will be required per acre. If planted 18 feet apart, 134 will be needed. With 20 feet allowed between each tree, there will be 109 trees to the acre. All should be planted square. Trees may be purchased from reliable nurserymen at from £3 10s. per 100, and from £30 to £35 per 1000. The cost of planting ranges from 10s. to 15s. per acre, according to the condition of soil and number of trees per acre. Although the initial cost of preparing land for orchard purposes in the districts mentioned is heavy, it is

found, when the trees come into profit, that the increase in the output per acre is much greater than is the case where the cost of clearing is not as heavy. This is not due to richness of soil, but rather to the influence of regular supplies of moisture, which enables the tree when cropping heavily to extract much larger supplies of nutriment than would be the case if droughty conditions prevailed. The conditions mentioned influence the trees considerably as time goes on, and, where well cared for, the crop increased with age to a wonderful extent. Many trees from 40 to 50 years of age yield up to 35 bushels of good fruit, and not infrequently 1000 cases per acre are gathered.

Chief among the enemies the fruitgrower has to face is what is known as apple scab, or black spot (*Fusicladium dendriticum*), a fungus that gives great trouble if preventive measures are neglected. To deal effectively with this pest, the trees are given a dressing with a fungicide, such as Bordeaux mixture. Where the pest is more than usually troublesome, a winter spraying is necessary, to be followed in the spring with a weaker application.

The mixture for use in winter is made up of the following:—Copper sulphate (bluestone), 6 lb.: fresh quicklime, 4 to 5 lb.: water, 50 gallons. For use on the trees just prior to the bursting of the blooms the following quantities are used:—Copper sulphate (bluestone), 1 lb.: fresh quicklime, 2 lb.: water, 10 gallons. To dissolve the bluestone, place it in a small piece of chaff-bagging, and suspend in a little water. It will dissolve in a few hours. If it is required at once, dissolve in boiling water, and add sufficient water to make 5 gallons. Slack the quicklime in 5 gallons of water, and add to bluestone water and mix thoroughly. Where fresh lime is not available common washing-soda may be used. The quantities in this case would be as follow:—Bluestone, 1 lb.; washing-soda, 2½ lb.: water, 12½ gallons. This is known as the Burgundy mixture. Where the Scarlet Nonpareil is to be treated, 2 or 3 gallons extra of water should be added.

Mussel scale (*Mytilaspis pomorum*) gives much trouble, and a sharp lookout should be kept in order to prevent heavy loss. Several mixtures are used to prevent the spread of this pest, red oil emulsion giving the best results. The quantities used are as follow:—Red oil, 1 gallon; soap, 1 lb.; water, 15 gallons. Use soft (or rain) water.

Woolly aphid, or American blight, sometimes called "white blight" (*Schizoneura lanigera*, Hausman), gives a great deal of trouble. The insect confines itself to the apple-tree, and is particularly fond of the young, tender shoots. Varieties such as Golden Reinnette, French Crab, Ribston Pippin, Cox's Orange Pippin, Jonathan, New York Pippin, and Sturmer Pippin are very subject to attacks from this pest. On the other hand, the varieties known as Rome Beauty, Five-crown Pippin, Gloster Pippin, Pomme de Neige (Apple of Snow), Winter Majetin, Magg's Seedling, Northern Spy, &c., are entirely proof against attack. These latter are known as blight-proof varieties. For many years the stocks for apple-trees were raised from seed, and even at the present

day this practice is more or less followed. The insect attacks all parts of the tree, and winters chiefly among the roots of such as are worked on seedling stocks: consequently the damage is much greater. As the aphid draws its supplies of food from the cellular tissue, piercing the bark in many places, much loss of vitality occurs. Extravasation of sap follows the attack, and on being exposed to the air large warty growths, which thicken with age, are formed. In some cases these entirely cover a large portion of the root surface, and interfere very greatly with its natural functions. In some instances the trees have been known to perish owing to the severity of the attack.

*(To be continued.)*



*A Giant of the Forest.*

## THE PIG.

### A TEAT FOR EACH PIG.

By R. J. TERRY, Poultry and Bacon Expert.

**D**URING the last few months I have visited a very large number of pigbreeders. A few were keeping swine on really up-to-date lines, but I must confess the great majority do not work with any system whatever, far too much being left to pure chance. Often a remark somewhat as follows is made: "See that sow, Mr. Terry? She's a good one; had fourteen pigs last farrowing." When I look into the pen, there are only six or seven young pigs, including in many cases the runt or weed. Upon asking where the others are, I find they have died, or the sow has killed them, and that she seldom rears more than seven out of the fourteen. On further investigation the fact is disclosed that the sow has only ten teats. It should be remembered that there is a decided waste in more ways than one by this method, or rather want of method. The commercial side, not the "fancy," appeals to me, and I want the farmer to get the highest returns from his pigs with the least strain on the stock and food bill. An even article, and no waste effort, should be the pigbreeder's goal. I will now give my ideas on this subject.

Sows are the most prolific of all animals on the farm. Ordinarily they seldom produce less than ten pigs at a farrow. Many make it a square dozen, and some throw numbers up to eighteen. Sows on the decline through old age are not so fertile as young ones. Those bringing the first farrow do not, as a rule, produce so many as from the second to the fifth or sixth litters, which are about the limit for full farrows, but many gilts please their owners by producing a dozen or more. I like this, too—not so much for the size of the farrow as for the promise it indicates of the sow being a good breeder. Some owners, however, think that they can never have too many. This view, in my opinion, is erroneous. A dozen pigs at most are quite enough for any sow, and the regulation number might be from eight to a dozen, according to the age and capabilities of the sows. A gilt under a year old, or a little over, with a dozen pigs depending on her, may look a rent-payer, but a point to be considered is, whether such a number is not likely to hinder her from developing into a good specimen of a breeder. I feel sure it will, and this is the reason we see so many dwarf sows in auction-marts and sale-yards in Tasmania. When relieved of her family the little gilt makes a great effort to recatch her previous free-growing condition; but it rarely happens, and undersized she remains to the end. She may breed most industriously, but all her progeny are on the small side in constitution, while the sow herself is unable to suckle them so quickly and well as is desirable. Too many pigs are a mistake at all times, but particularly in the first litter, and while the gilt is still unmaturing.

It is said that a sow can rear a pig for every teat she has. Some sows have ten, others a dozen to fourteen; but few exceed the number last mentioned. It is an unvarying rule with little pigs that each one selects or accepts a teat at the start and sticks to it. When the number of pigs exceeds the number of teats, they will never be a contented family, as there will always be contention, and in the scramble some will have to go to the wall.

#### DRAFTING THE FARROW.

The foregoing remarks should be convincing evidence that no sow should be allowed more pigs than she has teats; therefore never purchase or retain a sow for breeding which has only a small number of teats. Before the pigs are a few days old their number should be reduced till there is only one to each teat. I do not believe in doing this the moment they are farrowed, but prefer waiting to see which are the most robust. In the meantime all should get milk; but as soon as it can be observed which are the dwarfs the worst should be killed. Then comes the question as to whether the sow is capable of rearing a pig to every teat, and doing them all justice. Some well-managed sows can do so, but others cannot. In the latter case about half the pigs may grow well, while the others remain smaller, and never get very plump or sleek. They will form a mixed lot—of various sizes and conditions—and of all pigs such litters are the least profitable. If sold separately the best may bring a good price, but the bad ones pull down the average to an annoying extent. If the lot are sold together the buyer will bring his offer down to the value of the worst only, and there will be difficulty in getting more. This is the general experience, and it will continue so long as too many pigs are kept on a sow, and mixed broods produced.

The one and only remedy is to be less greedy about numbers, and trust to better condition making up the deficiency in the end, which it will, as eight or ten well-grown level and even pigs will sell quicker and fetch quite as much as a dozen or fourteen poorly developed ones. It is poor policy to keep the dwarfs in a litter, even if the number of good ones is hardly large enough. This especially applies to late farrows.

As the winter season is less in favour of pigs doing well than the summer it is all the more important to keep only good youngsters, as all beyond what can be well reared will suffer from want of milk when the cold is most severe. It is when the pigs are eight, ten, or twelve weeks old, and being weaned, that the most convincing arguments are to be found in favour of reducing them to reasonable numbers, as it is seen clearly then how badly some of them have fared. They make one feel inclined to knock them on the head, even though all the rearing process has been gone through. Many have felt like this, and some have actually carried it out. But the best treatment, and the most economical in point of time, is to give the whole matter intelligent consideration when the pigs are newly farrowed. Think of what kind of pigs the sows have reared previously. Have you decided on a previous occasion that you would never let her rear so many again, and are you now contemplating making

the same mistake? This is quite possible. But adopt my plan, and regulate a few litters, and you will assuredly have the most satisfactory evidence of the wisdom of it.

#### CARE AT FARROWING.

Many sows will become upset and savage if a stranger comes near the sty at the farrowing period. yet the man who feeds them regularly will be allowed to handle or even carry off half the pigs without any protest from the sow. These may appear small matters, but the "small" losses arising from them mount up in a season. Tasmanian farmers and pig-rearers cannot afford to miss any points if they are to successfully compete with the mainland breeders and build up the pig industry to the position it should occupy. During the time the sow is with young let her go about as usual, and feed her in the same way. Do not try to get her fat, but when due to farrow have her in robust condition, when she is pretty sure to pig without mishap, and will set them going capitally. Be sure you note the date when the sow was served, also the date on which the following 16-weeks period will end. A week before that let her get accustomed to one pen, if she has not done so previously. It will upset her if she is put in a strange place on the eve of farrowing. Her surroundings should be sweet and clean. Put some short straw in; two or three armfuls will be quite enough. The surest indication that farrowing is at hand is when the sow begins carrying the straw in her mouth, and making a bed in her own fashion. Do not interfere with her or disturb the bed. One precaution should invariably be taken when the sow is farrowing. She is partial to getting close to a wall, and amongst the few early accidents that happen is the squashing of some of the helpless little pigs between the wall and the sow. This very often occurs, but it can easily be avoided by fixing a rail all round the wall of the pen, at a distance of 5 or 6 inches from it, and about 9 or 10 inches from the floor. The little pigs slip under this, but the rail keeps the sow off, and hardly one will be squashed. The same person should always feed and attend to a young sow, or indeed an old one, before she farrows. Rub her back and pet her; then when the farrowing occurs the sow will not resent intrusion, which she is almost certain to do if a stranger approaches the pen.

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Sorghum is a drought-resisting, heavy-yielding plant, admirably suited for being made into silage.

One ton of farmyard manure will contain 9 to 15 lb. of nitrogen, 9 to 15 lb. of potash, and 4 to 9 lb. of phosphoric acid.

Says a farmer from Illinois, U.S.A.: "My experience is that now in cold and stormy winters fields protected by timber belts yield full crops, while fields not protected yield only one-third of a crop. Twenty-five or thirty years ago we never had any wheat killed by winter frost, and every year we had a full crop of peaches, which is now very rare. At that time we had plenty of timber around our fields and orchards; but it has now been cleared away."

## THE POTATO MOTH.

(LITA SOLANELLA.)

By ARTHUR M. LEA, F.E.S., &c., Government Entomologist.

THE potato and allied plants are frequently attacked by a small moth known as *Lita solanella*. With the potato, leaves, stems, and tubers are all attacked. The leaves are the first to suffer. The moth usually lays her eggs close together on the under-side of a leaf, close to the main or one of the smaller ribs. The grub, on hatching, immediately eats its way into the leaf, hollowing it out in patches, but leaving the skins. Frequently two or more leaves or leaflets are cemented together with silk, and the grub will often leave one part of a leaf for another part. After hollowing out part of the blade of a leaf the grub will often bore its way into the stem of the same, and from this occasionally into the stalk. On the plants being cut down by frosts, or dying naturally, the grubs will frequently wander about the fields, and attack any potatoes that are exposed, or that they can reach through cracks in the ground; hence, exposed potatoes are nearly always attacked.

The moths will sometimes lay their eggs on the tubers in the field, but to stored ones they are often particularly troublesome, as they lay their eggs (usually in small clusters) about the eyes, and the grubs, on hatching out, nearly always bore their way in at the eyes. Often two or more grubs will enter at the same eye, but their tracks soon separate. Inside the tubers the grubs work their way through the same in irregular tunnels, their passages being marked by cord-like strands of dung and silk; and these are sometimes so numerous that the tubers are quite unfit either for the table or for seed purposes; in fact, many of the misses frequently noticed by potatogrowers are really due to this small pest.

In Australia tobacco is seriously injured, as in addition to the loss by weight, sometimes amounting to one-fourth of the whole, the leaves are so badly disfigured that they are seriously reduced in value. Tobacco is not commercially grown in Tasmania, but should be more largely grown than it is, as it is one of the finest insecticides known for such insects as aphides and mealy bugs.

The Cape gooseberry is attacked, and quite recently the only Tasmanian grower known to the writer as cultivating this fruit on a fairly large scale suffered severely from the attacks of this little moth, as in addition to hollowing out portions of many leaves the grubs frequently drilled down the young shoots, and caused these to die off in thousands. The grower in question sprayed with arsenate of lead and Paris green, but apparently without benefit.

The tomato is occasionally attacked, but is seldom seriously injured, and the damage is confined to the leaves and young shoots.

Of solanaceous weeds the leaves of the devil's apple (*Solanum sodomæum*) are occasionally attacked. The trumpet weed (*Datura stramonium*), a very rare weed in Tasmania, also has its leaves attacked.



The eggs are very small and glistening, and on account of their minute size are difficult to find. The grub is of a pale, dirty-green colour, with a brown head, and measures about half an inch when full-grown. It will often turn into the chrysalis form inside a leaf, especially where two leaves are joined together; if it has left the leaf it will attach itself to almost anything, and in a shed its dirty silken cases may frequently be seen sticking to sides of potatoes, of bags, in cracks of wood, or any rubbish that may be lying about. The pupa or chrysalis is pale-brown in colour, and is enclosed in a small silken cocoon, which is nearly always covered with dirt. The moth itself is a small grey insect, with front wings darker than the hind ones, a little more than half an inch across the expanded wings, and its body is about a quarter of an inch in length. Some years it may be noticed that the moths are very numerous, and do much harm, whilst in the next they are comparatively scarce. This is largely due to the multiplication of parasites, climatic influences, and also, no doubt, to bacterial diseases. The moths may frequently be seen attracted to lights, especially in sultry weather preceding thunderstorms. Breeding is continuous throughout the year.

Against the grubs within the leaves or stems of the plants attacked very little can be done, as the eggs being laid on the under-surface of the leaves, and the young larvæ boring their way inside shortly after hatching, they are protected against sprays during practically the whole of their feeding stages; but the destruction of the tubers may be greatly minimised by observing proper precautions. It is very easy to know if a field of potatoes is attacked, as the leaves are brown in patches, and the moths may often be seen flying along the ground, never rising to any height, and frequently resting on clods, &c. When a field is noticed to be badly infested the tubers should be dug out earlier than they usually are, before frosts if possible.

Potatoes stored dry are almost certain to be attacked unless lime is sprinkled over them; and as it is now absolutely necessary to keep them dry, on account of the Irish blight, the pest promises to be more serious in the future than in the past, when so many of our potatoes were pitted.

Very large numbers of grubs and pupæ can be destroyed by harrowing up and destroying the tops, and the sooner this is done after digging the more will be destroyed. Pigs also should be turned into the field to eat up any tubers that have been overlooked, or are too small to bag, and such tubers would then serve as useful traps for the grubs or for the moths to lay their eggs upon.

Windbreaks benefit animals as much as their owners.

Whatever may have been the case in the past, no apology is now needed for introducing a silage crop into the rotation, for fodder-conservation is now recognised as being of next importance to water-conservation.

## GARDEN NOTES FOR MAY.

By J. OSBORNE, JUN., Horticultural Instructor.

### KITCHEN GARDEN.

**A** GENERAL clean up of the garden may now be commenced--old beds of beans, peas, cabbage, cauliflower, lettuce, radish, tomato, &c., to be dealt with. The refuse, if a place is to be had for the purpose, should be pitted and covered to a depth of 6 inches. A fine heap of good mould will be obtained in this way for another season. Leaves of deciduous trees should receive the same treatment.

Beds of onion, radish, spinach, cabbage, lettuce, cauliflower, &c., that were sown late should be hoed or weeded when dry enough.

Sow turnip (white stone or strap-leaf). Be careful to sow thinly.

Radish may be tried also, sowing thinly.

Where frost has not destroyed tomatoes they should be gathered and put by for pickling. Clean the plants off and dig the beds deeply, manuring liberally.

Potatoes should now be lifted and stored. Be careful; do not bruise the tubers. After the digging plant cabbage, cauliflower, and lettuce.

Late celery should be examined for rust. Beets for pickling may be lifted and stored. They do not improve their condition for the purpose if left longer in the soil.

Rhubarb beds may be cleaned up and top-dressed with well-decomposed stable manure; be liberal when applying it.

Sea-kale should receive the same attention. Add a little coarse salt.

Parsnips and carrots (main crop) may be lifted and stored; artichokes also.

Asparagus beds left from April should have attention. Remove the dried tops; manure heavily with a mixture of well-decayed stable dung, adding liberally sea-sand and coarse salt.

Small fruits should receive attention this month.

Remove all old canes from raspberry beds, and where the stools are large (carrying too many canes) a portion may be removed, reducing the number on each stool to six or eight according to strength. Tie up tidily, manure liberally, and allow the beds to remain till the spring for digging.

Prune currant and gooseberry trees, removing all suckers. In the case of black currants care should be exercised in order to preserve a fair percentage of young wood growths for future fruiting.

Strawberry beds may be cleaned up, removing all weeds and rubbish. Top-dress thoroughly with well-decayed stable manure.

Herbs should be trimmed or cut in to promote a good growth in the early spring.

Rosemary, thyme, and sage to be tied up in neat bundles and hung up to dry.

Keep the hoe going in fine weather, and gather up the weeds as far as possible; if left they will be likely to become rooted afresh.

## FLOWER GARDEN.

During this month a deal of cleaning up may be done.

Beds may be prepared for bulbs (Japanese). Dig deeply, adding liberal supplies of well-decomposed manure. Plant the bulbs 4 inches deep.

Late hyacinths may be planted.

Towards the end of May a plantation of gladioli of the *Gandavensis* type may be put in. These will provide some early flowers.

Gladioli of the *Colvilli* type may be planted also. *Ixias*, *freesias*, and such-like bulbs should be put in. *Iris*, lily of the valley, solomon's-seal, snowdrop, and bulbs of the different varieties of *Alliums* may be planted also.

Herbaceous plants must be attended to, and, if necessary, divided and replanted in well-prepared beds.

Remove all annuals and biennials that have finished flowering.

Plant here and there in the garden a few stocks, wall-flowers, sweet-williams, and snap-dragons. These should be in flower in the early summer.

*Chrysanthemums* should be full of flower, and ought to be protected from heavy rain.

Cuttings of shrubs and a few biennial plants may still be put in, using a free, sandy compost.

Do not water too heavily.

Tea roses intended to flower early may be pruned.

Sow a few sweet-peas in a warm, sheltered spot.

Low-branching shrubs may be layered now.

During dry weather keep the hoe at work.

## GREENHOUSE.

In the glass house the plants will require attention. A general sponging of palms and dracœnas should take place, choosing wet days.

Where the soil has become clogged it will be best to remove it and give the plants a new supply, using a free, open compost. Where scale is present a mixture of soft-soap at a strength of 1 lb. soap to 4 gallons of water with a pint of kerosene added, the whole to be boiled slowly for 20 minutes, should be prepared, the plants to be thoroughly sponged with the preparation.

Should *aphis* appear fumigation of the house with tobacco will remove the trouble.

All gesneraceous plants should be attended to, being kept fairly dry; tuberous-rooted begonias also.

Do not water as freely as in April, and withhold the syringe.

Ventilate freely.

## SECOND EGG-LAYING COMPETITION.

THE following are progress reports for the ninth and tenth months of the egg-laying competition conducted at the Springvale Tea Gardens, New Town:—

### Ninth Month.

	Month of Feb.	Total to date.
1. Black Minorcas, C. W. Calver, Launceston ... ..	97	609
2. White Leghorns, O. H. Olson, Karoola ... ..	95	1101
3. Silver Wyandottes, W. T. Stephens, Beulah ... ..	95	977
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	106	944
5. White Wyandottes, A. G. Genders, Launceston ... ..	106	907
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	118	881
7. S.C. Brown Leghorns, East Launceston Poultry Yards, Launceston ... ..	130	936
8. White Leghorns, W. J. Camp, Wynyard ... ..	48	631
9. White Leghorns, G. Boatwright, Smithton ... ..	94	847
10. White Leghorns, Whiteway Bros., King's Meadows ...	100	599
11. Old English Game, J. Thorne, Waratah ... ..	81	697
12. White Leghorns, C. W. Calver, Launceston ... ..	133	1008
13. R.C. Brown Leghorns, W. T. Stephens, Beulah ... ..	101	809
14. White Leghorns, C. R. Williams, Fingal ... ..	110	955
15. Black Orpingtons, H. R. Taylor, Launceston ... ..	96	839
16. White Wyandottes, A. G. Genders, Launceston ... ..	108	889
17. S.C. Brown Leghorns, F. Briggs & Son, Longford ...	106	889
18. White Leghorns, L. Dowling, Devonport ... ..	84	584
19. Silver Wyandottes, L. S. Hyland, Mt. Hicks ... ..	84	825
20. White Leghorns, O. H. Olson, Karoola ... ..	109	999
21. Black Orpingtons, Mrs. S. F. Clarke, Hobart ... ..	70	742
22. Buff Orpingtons, H. G. Spicer, Stanley ... ..	87	736
23. White Orpingtons, W. H. Hale, Strahan ... ..	104	836
24. White Leghorns, B. H. Whittle, Launceston ... ..	85	1051
25. White Leghorns, F. A. W. Gisborne, Risdon-road ...	108	905
26. White Leghorns, Rust Bros., Claremont ... ..	125	942
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ...	110	1077
28. White Leghorns, A. Sheriff, Hobart ... ..	100	918
29. White Leghorns, Mrs. Luke Williams, Moonah ... ..	118	955
30. Buff Leghorns, C. G. Gilham, Launceston ... ..	50	587
31. White Leghorns, W. G. Skidmore (Penville), Launceston	120	748
32. R.C. Brown Leghorns, F. Briggs & Son, Longford ...	73	921

### Tenth Month.

	Month of March.	Total to date.
1. Black Minorcas, C. W. Calver, Launceston ... ..	49	658
2. White Leghorns, O. H. Olson, Karoola ... ..	91	1192
3. Silver Wyandottes, W. T. Stephens, Beulah ... ..	103	1080
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	85	1029
5. White Wyandottes, A. G. Genders, Launceston ... ..	92	999
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	88	969

## SECOND EGG-LAYING COMPETITION. Tenth Month—continued.

	Month of March.	Total to date.
7. S.C. Brown Leghorns, East Launceston Poultry Yards, Launceston ... ..	105	1041
8. White Leghorns, W. J. Camp, Wynyard ... ..	30	661
9. White Leghorns, G. Boatwright, Smithton ... ..	49	896
10. White Leghorns, Whiteway Bros., King's Meadows ...	97	696
11. Old English Game, J. Thorne, Waratah ... ..	41	738
12. White Leghorns, C. W. Calver, Launceston ... ..	108	1116
13. R.C. Brown Leghorns, W. T. Stephens, Beulah ... ..	97	906
14. White Leghorns, C. R. Williams, Fingal ... ..	91	1046
15. Black Orpingtons, H. R. Taylor, Launceston ... ..	99	938
16. White Wyandottes, A. G. Genders, Launceston ... ..	91	980
17. S.C. Brown Leghorns, F. Briggs & Son, Longford ...	64	953
18. White Leghorns, L. Dowling, Devonport ... ..	Withdrawn	
19. Silver Wyandottes, L. S. Hyland, Mt. Hicks ... ..	79	904
20. White Leghorns, O. H. Olson, Karoola ... ..	63	1062
21. Black Orpingtons, Mrs. S. F. Clarke, Hobart ... ..	47	789
22. Buff Orpingtons, H. G. Spicer, Stanley ... ..	46	782
23. White Orpingtons, W. H. Hale, Strahan ... ..	78	914
24. White Leghorns, B. H. Whittle, Launceston ... ..	65	1116
25. White Leghorns, F. A. W. Gisborne, Risdon-road ...	61	966
26. White Leghorns, Rust Bros., Claremont ... ..	81	1033
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ...	120	1197
28. White Leghorns, A. Sheriff, Hobart ... ..	116	1034
29. White Leghorns, Mrs. Luke Williams, Moonah ... ..	92	1037
30. Buff Leghorns, C. G. Gilham, Launceston ... ..	Withdrawn	
31. White Leghorns, W. G. Skidmore (Penville), Launceston	81	829
32. R.C. Brown Leghorns, F. Briggs & Son, Longford ...	96	1017

Many seedsmen and a few farmers test their seeds.

Rest and quietness are essential for rapid fattening.

Milk-sugar when converted into lactic acid by bacteria makes the milk curdle. Rennet can do likewise.

The man who cannot milk without abusing cows has no right in the cow-stable. Harsh treatment of any kind will result in a decreased yield, and if long practised will permanently injure the cow as a milking-machine.

One often hears the remark that boars should be wide in the shoulders and have their necks thick, whereas these are two points of very little importance, even if it be not advisable to avoid them, as they are not indications of high quality of meat, nor, with the present fashion or style of carcass required by the butcher, the bacon-curer, and the public, are they approved of by those who eventually place a value on the meat of the fat pig.

The disposition of an animal to fatten depends much on breed and temperament. It is almost impossible to fatten a wild animal, while its domesticated descendants, especially if bred with the object of obtaining rapid increase, may be readily fattened. The changes in organisation produced by long-continued systematic breeding are most strikingly shown in the case of the pig. In the wild boar the intestines are six times the length of the body; in modern domesticated breeds the intestines may be more than twenty times the length of the body.—[WARINGTON.]

## BOARDS OF AGRICULTURE.

THE following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	G. Pratt	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Channel	W. Baldwin	Woodbridge
Cressy	James Anderson	Cressy
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
Elliott	L. H. Shepherd	Elliott
Fingal	F. M. Lattin	Fingal
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Geeveston	F. Hyndes	Geeveston
Glengarry	W. Wheldon	Glengarry
Glen Huon	P. H. Young	Glen Huon
Harford	Geo. Sykes	Harford
Irish Town	E. L. Smith	Irish Town
Kimberley	H. Britton	Kimberley
Kettering	F. Hawkes	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
King Island	A. Bertram	King Island
Leslie	R. C. Reid	Fern Tree
Lilydale	—	Lilydale
Lymington South	T. Burnaby	Lymington
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marrawah	E. Bonhôte	Marrawah
Montagu	R. Ennis	Montagu
Meander	H. Evans	Meander
Mt. Seymour	W. Wilson	Mt. Seymour
Mowbray	G. H. Boatwright	Smithton
Mooreville-road	J. M. Douglas	Burnie
New Ground	A. H. Douglas	Moriarty
New Norfolk	B. R. Reynolds	New Norfolk
North Motton	O. Waters	North Motton
Nook	M. McInnes	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgley	W. Morris	Ridgley
Scottsdale	F. F. Tucker	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
Sheffield	O. Ridley	Sheffield
South Preston	R. G. Allison	South Preston
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carins	Myrtle Bank
Sprent	A. Lee	Sprent
Staverton	T. Wootton	Staverton
Stoodley	J. Leo	Stoodley
South Springfield	M. J. Cox	South Springfield
Table Cape	H. J. Smith	Wynyard

## BOARDS OF AGRICULTURE—continued.

BOARD.	HON. SECRETARY.	ADDRESS.
Tyenna	F. M. Smith	Tyenna
Ulverstone	H. A. Nichols	Ulverstone
Upper Mountain River	A. Griffiths	Grove
Wattle Grove	K. Lord	Wattle Grove (Lower)
Wilnot	D. E. Forbes	Wilnot
Yolla	D. T. Jones	Yolla

## Avoca, March 11.

**PRESENT.**—Messrs. J. Conway (Chairman), L. Herbert, J. Shepperd, J. Rubenach, Jun., J. J. Rubenach, J. Smith, J. Macarthy, C. Davis, H. Mal-kin, W. Ayres, W. Duncan, C. Shelton, A. T. Rubenach, and the Hon. Secretary (Mr. G. Pratt).

**STATE FARM.**—The Board favoured the establishment of such an institution as that outlined by the Director. Messrs. Conway and Ayres cited the success of the New South Wales and New Zealand colleges as an instance of the immense advantages of somewhat similar establishments to the State. The probable cost of establishing such a farm was discussed, and the following resolution, moved by Mr. Ayres, was carried:—"That this Board favours the establishment of a State model farm as outlined by the Director in preference to an agricultural college, as a less expensive means to the same end." As regards the site of the farm, the Board was of opinion that the Evandale, Longford, and Westbury districts were the most suitable, possessing as they do the requisites of first-class land, water for irrigation, and a central situation. Concerning the area the Board was in agreement with the Director that it should be 500 acres, but considered that it should be all first-class land if the institution was to be financially successful. The Board also considered that the students' fees should be made as low as possible, but that an adequate share of work be expected from each student. Further discussion was postponed till next meeting.

**NEW MEMBERS.**—Two new members were enrolled.

## Clarence, March 11.

**ATTENDANCE, EXHIBITS, &c.**—The first annual meeting of the Clarence Board of Agriculture, as reconstituted recently, was held in the Bellerive Institute on the above date, and was presided over by the Hon. J. Murdoch, M.L.C. There was a large gathering of farmers, with their wives and daughters, from all over the Clarence Municipality, and several of the Government experts were also present. The hall had been tastefully decorated by Misses O'May, Chipman, Gould, and Mr. James O'May and the Secretary (Mr. R. A. Black) with flags and shrubs (kindly lent by Mr. Jas. O'May), useful wall-posters, and a number of interesting exhibits. Roberts and Co. showed a selection of pears and apples graded in three sizes by Mr. Shields' grader. The Government Entomologist (Mr. Lea) lent a good collection of entomological exhibits, comprising some ten cases of butterflies, moths, and pests of farm, field, and orchard. The Secretary exhibited a large collection of mounted specimens of noxious weeds and their seeds, and the Agricultural and Stock Department had on view a fine collection of wheats—138 different kinds—kindly presented to the Department by Mr. Frank Maddox, wheat experimentalist. A number of sheep dips and manures were shown by Webster and Sons, while Roberts and Co. also exhibited a number of fertilisers.

**ANNUAL REPORT.**—The Secretary read the annual report, which was as follows:—"I have the honour to present my annual report upon the working of the Board since the abolition of the Council of Agriculture, to which it was

officially connected and governed by regulations made under 'The Department of Agriculture Act' now repealed. The first meeting of the Board as reconstituted was held on March 19 last, when the following resolution was proposed by Mr. A. O. Green, seconded by Mr. Albert Chipman, and carried—"That for the future the Board be called 'The Clarence Board of Agriculture,' and that it continue to hold its meetings as hitherto." Thus it will be seen that it is just 12 months ago since the Board launched out as an independent body, a step that was deemed by many public people fatal, because it was thought that the interest members had in the late Branch Board of Agriculture would wane and ultimately die upon the abolition of the Council of Agriculture. Members can now judge for themselves, and I think will support me when I say that the Board has, on the contrary, strengthened itself, and has now become known as the leading board of its kind in Tasmania. Upon the holding of the first meeting of the Clarence Board of Agriculture a distinctly new departure was made by concluding it with a social, to which the farmers' wives and daughters were invited, and who attended in good numbers. The social was such a decided success that members are now looking forward to its annual event. For the first time in the history of boards of this description a set of rules to govern procedure at meetings was drawn up and adopted by this Board, and have now, I learn from the Director of Agriculture, been accepted as suggestive rules for all similarly established boards of the State. According to Rules 5 and 6 four ordinary meetings in each year are deemed sufficient to enable the business of the Board to be transacted, but viewing the quantity of matter which is now on hand, Rule 8 will have to be availed of and special meetings held from time to time. Upon the early coming into office of the Director of Agriculture he addressed a circular to the Board stating that it would be his endeavour to create a reciprocal attitude between members of the farming community and the Agricultural and Stock Department; and with a view to making the Boards more important he would from time to time submit questions of consequence to the rural world for discussion whose decisions he said would be of material assistance to him when carrying out the work of the Department. The Director pointed out that 'It must be patent to all that the more interest that can be aroused in the direction of enlisting the active co-operation of the farmer himself, is one of the surest channels through which a gradual uplifting of agriculture in Tasmania can be accomplished.' During the past year seven new members were elected, which now brings the roll up to 39 members. The total amount collected in subscriptions was £3 14s. 11d., and after deducting £2 0s. 6d. expenditure as per cash-book tabled there remains a credit balance of £1 14s. 5d." Mr. H. Jolliff moved the adoption of the report. Mr. A. O. Green, in seconding the motion, said the Board could be congratulated upon its courage in striking out independently when the Branch Boards were abolished. The Board should also feel most gratified that it had such a capable Secretary to conduct its affairs. The report was adopted.

**ELECTION OF OFFICERS.**—The election of officers for the ensuing year resulted as follows:—President, Hon. J. Murdoch, M.L.C.; Secretary, Mr. R. A. Black.

**NEW MEMBER.**—Mr. Allan L. Morrisby, of Sandford, was unanimously elected a member of the Board.

**PRESIDENTIAL ADDRESS.**—The President (Hon. J. Murdoch, M.L.C.) gave the following address:—"It will be in the memory of the members of the late Clarence Branch Board of Agriculture that owing to the appointment of a Director of Agriculture the Branch Boards throughout Tasmania were abolished. Many members of the old Board being desirous that the work which had been conducted so long and with much benefit should be continued, held a meeting, at which it was decided that the work should be



continued, and it was agreed that a new Board should be formed, to be called 'The Clarence Board of Agriculture.' A President and other officers were elected, and a social was held to close the business of the old Board and inaugurate the new one. Our energetic Secretary, Mr. R. A. Black, was determined to make the meeting a thorough success, and arranged that the President and other members of the Board, with some of the agricultural experts, should deliver addresses. Further he was instrumental in getting together many valuable and instructive exhibits of agricultural products, specimens of seeds, and dried and mounted specimens of noxious weeds prepared by himself, the inspection of which was an object-lesson to many of us. The ladies provided refreshments, and all felt the meeting was a decided success, and that the new Board had been launched on its career in a satisfactory manner. To-night we hold our second annual meeting, and I take the opportunity to congratulate our Secretary and members on being able to present such a favourable annual report. To-night I desire to take the opportunity of saying a few words "On the Necessity for Organisation of Agriculture or Co-operation amongst Farmers." I think it will be patent to all of us that in these days of the amalgamation of or co-operation amongst steamship companies, coal-mining companies, and many other business ventures it should be also the aim of the farming community to co-operate amongst themselves as much as possible for the disposal of their produce and the purchase of their supplies. To take one notable example of the benefit of co-operation amongst farmers, I need only refer to the butter industry. It is not many years since the milk was set in the shallow pans, the cream skimmed off, and the butter made by the farmer's wife or daughters, with the result that from one district there would be many different grades of butter sent into the market of varying degrees of quality—from very bad to very good—the samples of very good being few and far between, whilst, judging from the many complaints of the consumer, the number of inferior lots turned out must have been very numerous. Now every district at all suitable for the production of milk has its factory for the manufacture of butter; and while at first many of the factories were started by business men, I am glad to see that in nearly every instance the farmers are now finding the capital for and working factories themselves. The whole of the profit after deducting working expenses is thus going directly into their pockets, and the reproach that good butter could not be obtained in Tasmania is now practically a thing of the past. There is still much to be done in this direction, and I believe our Government and legislature are seized with the necessity of helping this and the other agricultural industries, as much as their means will allow them, by the appointment of lecturers on agricultural subjects; and I would point out the necessity of giving this teaching as much as possible a good practical turn, connecting the benefits of agricultural science with practical facts, thus broadening the view of the pupils and rendering their daily work more attractive to them than before by transforming their knowledge 'how' into understanding 'why.' Another industry that I am convinced would benefit greatly by a system of co-operation is the great fruit industry of this island. It has been urged, with a great deal of reason, by many interested in this industry that instead of our apple crop being picked and graded by the individual grower and marked with his brand, thus causing a great multitude of small lots with various brands and qualities to be put on the market, that each district, such as Franklin, Lovett, Derwent Valley, Bagdad Valley, &c., should have its central packing-shed, where the fruit could be graded, packed, wrapped, and branded with the district brand rather than with the grower's. At the meeting of the Australasian Fruitgrowers' Conference held in Hobart in November last a paper was read by Mr. John Callander on 'The Australian Fruit Industry,' and the portion dealing with individual effort in the market-

ing of fruit so closely coincides with my own views that I have no hesitation in quoting here portions of that paragraph of his report:—

**‘Individual Effort.**—The history of fruit-cultivation in this country clearly shows that individual effort has lamentably failed to “make good,” as the American growers would say, an asset that is full of wealth-producing possibilities. Everything indicates that the time has arrived when growers should join forces to secure, in the first place, ample cool storage accommodation at every fruit centre in each State. Side by side with cool stores there should come into existence casing and packing sheds where the fruit will be prepared for market in a uniform and attractive style. . . . It will also be imperative to deal with rail-age of produce to the seaboard, and the ocean carriage of it under co-operative supervision. The final and probably most important phase of co-operative effort which calls for attention is that which will place in each of the world’s markets a direct representative of the growers. His duty will be to see that trade is conducted in such a way that there will be something like an equal balance preserved between the “growers’ minimum” and the “consumers’ maximum.” Experience in various parts of the world has forced producers to recognise the importance of grading and packing. They have come to the conclusion that the work is one for co-operative effort, and that it cannot be done with anything like success by individuals. The latter system is general throughout Australia. Under it nearly the whole of that which is produced lacks value because of the absence of finish which systematised grading and packing impart. In all fruit centres there must come into existence establishments where the produce can be arranged and cased in the most profitable manner. Such places will be to the fruit industry what creameries and butter factories are to dairying. Without them that wholesale uniformity, which commands attention in the world’s markets, cannot be created. Under co-operation, grading and packing at recognised centres would become systematised, and the grower be enabled to deliver his produce for treatment by skilled experts in the same way that dairymen hand over their supplies to be dealt with, and made ready for sale, in the best and most attractive manner. In America, Canada, Great Britain, and various European countries, co-operative grading and packing are general. Producers have been shown how important it is that the work should be done conjointly, and how futile it is for individuals to hope for success. The application of co-operative methods to grading and packing is badly needed in Australia. It only remains to be emphasised, that whatever action is decided on, producers must be loyal to their own interests. Fruit co-operations have failed in the past, not because the system was bad, but because the organisations did not receive that whole-hearted support which is the essence of successful co-operative trading.’

In egg-production I have no doubt our Poultry Expert, Mr. Terry, would also say there is a great field for co-operative effort. In South Australia, at any rate, that feeling is being cultivated, and egg circles are being established there, the chief object of which is to find an outlet for eggs in the flush of the season. In this co-operative movement we find much to interest and instruct us. Denmark apparently, above all other places, has learned the advantage of, and necessity for, co-operation amongst her rural population. Co-operative associations have been established there to provide the capital for the mutual assistance of small landholders, and co-operative bacon-curing factories and co-operative dairies, the members of which in 1904 possessed 750,000 cows out of a total 1,067,000 milch cows in the country, have been established all over the country. Could not something be done

in the training of our children, especially in the country, to show them the advantages of co-operation in all rural industries; to cultivate a spirit of comradeship amongst them; to teach them to love the country; to instil into their minds the fact that our agricultural, pastoral, and horticultural industries are producing more wealth than any other interest in the State, and with no danger, with enlightened and careful cultivation, of ever becoming exhausted as other industries may? In conclusion, let me quote the following, as read a few days ago, with the hope that both young and old present this evening will think of my concluding words if not of my address:—

'I love the green fields and glittering waters where industrious hands are gathering the golden fruits of toil.

The sorrows and joys of the land shall be mine, for you to me are father and mother—even more than sister and brother—for you are my native land.

If every voice in the wood were silenced and withered all the golden fruit, if night and darkness were to cover every field, I still should find thee beautiful.

If all lofty dreams you dreamt of old should come to nought, if hard times and want should be thy lot, I still should love thee as dearly.

But still the song rings in the wood and the flag is waving on high, and there is a God above who watches over Tasmania.'

Mr. A. O. Green said that in union there was strength. Many people might say that the particular circumstances of the farming community were not favourable to unions in the sense that other nations achieved such good results. But it could be depended upon that though the farmers might have difficulties in forming unions, other sections of the community had quite as many difficulties of their own kind. The foundation of co-operation among farmers was that everybody should be honest, and that every product should be exactly what it was promised to be. It was always the case that in the beginning of a trade, those engaged in it pursued their own trade individually, but later on in its development it was recognised that the buyer required to know exactly what he was buying, and liked to see the goods of a standard quality marked in the same manner.

THANKS.—Mr. J. Salmon expressed his pleasure that the ladies were taking such an active part in the working of the Board, and thanked them for their attendance.

ADDRESS BY CHIEF INSPECTOR OF STOCK.—Mr. T. A. Tabart, in response to a request by the President to say something on the subject of the new quarantine regulations, said that he had never been consulted in regard to them at all. He had seen in the paper that the Dairy Expert had been called on to report on Perkins Island as a quarantine station, but with what result he did not know. He was therefore unable to give the meeting any information. In conjunction with Mr. R. A. Black he was conducting experiments to ascertain the life-history of the sheep tick (*Melophagus ovinus*, Lat.), but these experiments were only in the initial stage. They had determined the incubation period of the pupa as 21 days, and various experiments had been made with dips as to their effect upon parasites. They had also proved that the idea that the ticks would live for a considerable length of time off the sheep was erroneous.

ADDRESS BY AGRICULTURAL ORGANISER.—Mr. L. A. Evans, Agricultural Organiser, expressed his pleasure at the excellent attendance, and said that, in forming Boards of Agriculture, he always laid great stress on the benefits of the social side of the matter being taken up. The movement in the direction of the reorganisation of Boards had only been in existence about nine months, but there was distinct and clear evidence that, provided no set-back due to want of funds in the Department occurred, there would be no great

difficulty in organising farmers in many parts of the State. It was largely a question of funds, because when Boards were formed in places where the farmers wanted a great deal of help the Department had to carry out experiments, and frequently send experts to give addresses.

**ADDRESS BY POULTRY EXPERT.**—Mr. R. J. Terry said that he had seen the benefits of co-operation in Denmark—co-operation, unfortunately, as it was not known here. He had been sent there by the Smithfield Market when the bacon industry was first started, and when it was thought that it might possibly grow. At that time Denmark was a dairying country, and bacon was only manufactured in limited quantities. The pigs used to be sent to Germany, but an outbreak of swine fever took place, and the German markets were closed. The Danes had to make their own bacon, and they found they could make better bacon than the Germans did. They got the English trade, and had kept it ever since. The trouble in the bacon industry in Tasmania was due solely to the want of co-operation. The man who sold the bacon, such as the storekeeper, could never be sure of what he was going to get. No matter how good the bacon made by an individual farmer might be, he could not supply the storekeeper all the year round, and customers got used to a particular quality, and were not satisfied with any other. What was needed was that the farmers, instead of making their bacon themselves, should send their pigs to factories, which should be as few in number as was compatible with the proper serving of the country districts. When that was done they could hope to compete with the mainland.

**ADDRESS BY AGRICULTURAL CHEMIST.**—Mr. H. J. Colbourn, the Agricultural Chemist, spoke in regard to the conservation of moisture in localities where the rainfall was limited, such as was the case in the Clarence district, and recommended subsoil ploughing, with fertilisers and lime to increase the friability of the soil, and thus retain the moisture in the ground. The use of lime would also render the soil more easily penetrable by rain. In dealing with the surface soil under such conditions, three things were important—the thorough cultivation of the ground, the use of lime, and the ploughing in of green crops. To prevent surface washing, it was recommended to fill in places liable to it with layers of straw and plough them in, which would make the ground permeable to moisture, while preventing it from being washed away by heavy rains.

**GENERAL.**—After a vocal item by Mr. P. Johnson the meeting resolved itself into a conversazione, during which an opportunity was afforded all present to inspect exhibits, look through microscopes supplied by Mr. H. M. Nicholls and the Secretary, and to partake of refreshments supplied by the members' wives and daughters. During the conversazione and prior to the President's address Miss F. Johnson gave very acceptable pianoforte selections, which were greatly appreciated. The Board gratefully acknowledged the services of the following ladies and gentlemen who assisted in making the social such a pronounced success:—Misses O'May, Chipman, Gould, Wellard, and Wertheimer, and Messrs. James O'May and H. M. Nicholls.

#### Elliott, March 17.

**PRESENT.**—Messrs. T. Hyland (Chairman), R. Gee, R. Wyllie, J. W. Hartnett, A. Clark, H. Gale, C. Bell, T. Marsden, and L. H. Shepperd (Hon. Secretary).

**RULES.**—The rules and regulations of the Clarence Board, with slight modifications, were adopted.

**MEETINGS.**—Annual meeting to be held in March, on date to be fixed by Secretary. Ordinary meetings to be held quarterly, and extra meetings to be called by the Secretary or Chairman when deemed necessary.

**SUBSCRIPTIONS.**—Annual subscription fixed at 2s., payable in advance.

**NEW MEMBERS.**—Messrs. R. Gee, F. Hyland, T. Marsden, and C. Bell. It was decided that only *bona fide* farmers and landholders be eligible as members.

**CONFERENCE AT WYNYARD.**—Messrs. F. Hyland and R. Wyllie were elected as delegates to attend the Wynyard conference, and instructed to use their own discretion with regard to voting on any matter brought up for discussion.

**SPRAYING.**—Spraying has been practised to a varying extent in this district, and members were unanimously of opinion that good results had accrued from its adoption. It is anticipated that spraying will be universal in this district next season. As to which is the better solution—lime or soda—the Board has no opinion to offer, as soda only has been used, but members would be glad to have any information (based on practical experience) bearing on the subject.

**STATE AGRICULTURAL FARM.**—A lengthy discussion took place on this subject, and ended in the Board expressing its entire approval of the scheme as laid down in the leaflet. Members at the same time trust the establishment of such a farm will not preclude the adoption of some system of experimental plots under supervision being undertaken, as land, even within the radius of a few miles, varies to such a great extent.

### Forth, March 11.

**PRESENT.**—Messrs. M. Barker (Chairman), C. H. Wellard, T. C. Wellard, D. L. Whitchurch, H. Hays, E. Vertigan, and H. A. Vertigan (Hon. Secretary).

**POTATOES.**—Letters were read from the Penguin, Ulverstone, and Latrobe Councils in reply to letters from the Board regarding the embargo placed on Tasmanian potatoes by West. Australia. On the motion of Mr. Hays it was decided that the matter be held over till after the conference of Ministers of Agriculture.

**CONFERENCE.**—A number of letters were read from the Department of Agriculture as to the time and place of the proposed conference of Boards of Agriculture. The following resolution, moved by Mr. H. Hays, was carried:—“That the Chairman and Secretary represent this Board at a conference to be held at Ulverstone on the 27th instant.”

**AGRICULTURAL FARM.**—Members expressed themselves as being in entire sympathy with the scheme laid down by the Director of Agriculture for a State agricultural farm and school.

**DODDER.**—Mr. Hays referred to this subject, and an informal discussion followed; but no action was taken.

**BABCOCK TESTER.**—Mr. Whitchurch reported having received the Babcock tester, and stated that it was working satisfactorily.

**GRASS SEED.**—The Secretary stated that he had received a sample of grass seed from the Agricultural Department, and had forwarded it on to Mr. Whitchurch.

### Geeveston, March 16.

**LECTURE.**—Mr. Terry attended, and gave a lecture on the pig and poultry industries. On account of another meeting being held the same evening, and members being anxious to attend same, the attendance was small. A vote of thanks was accorded Mr. Terry for his lecture, and it was decided that he be asked to give another lecture at a future date.

**PAMPHLETS.**—Pamphlets on the egg-laying competition were received from the Department of Agriculture.

**Kindred, March 25.**

**PRESENT.**—Messrs. N. Loane, E. A. Russell, F. Granger, G. Weindorfer, W. Polden, T. Trebilcock, A. Cumming, and the Hon. Secretary (Mr. C. C. Polden).

**SEED.**—A long discussion took place on the need for the introduction into the State of clean seed. Members were unanimously of opinion that there is also great need for a change in seed potatoes and all cereal seed. On the motion of Mr. Weindorfer, it was decided that the Secretary draw the attention of the Director of Agriculture to the need for establishing experimental plots in all the producing centres of the State for the purpose of producing clean seed.

**POTATO FREIGHT.**—This subject was discussed, and the following motion, proposed by Mr. Loane, was carried:—"That the Director be asked to try to induce the Government to reduce the return freight on potatoes that are condemned and returned to the farmers by rail."

**NEXT MEETING.**—It was decided to hold the next meeting soon after the Ulverstone conference, to discuss matters brought up at the conference.

**Ridgley, March 16.**

**PRESENT.**—Messrs. R. Hilder, J. Hancock, J. Moore, J. Matthews, B. Gant, W. Townsend, and W. Morris (Hon. Secretary).

**QUARANTINE.**—The Secretary favoured doing away with the quarantine laws absolutely, and trusting to rigid inspection at port of exit and entry to ensure healthy stock. He admitted that there might be some disadvantage in allowing free entry; but said every one had to take business risks, and in this instance he thought the benefits would outweigh the disadvantage. The great dread of Tasmanian dairymen with regard to importing cattle was pleuro, which disease was prevalent in Victoria. He (the Secretary) had no knowledge of it, but had heard experienced men say that it was not troublesome since the inoculation treatment had been introduced. However, Victorian farmers had built up a larger dairying industry than that of Tasmania in spite of the dreaded pleuro; moreover, land for butter-producing purposes was worth more in Victoria to-day than it was in Tasmania. Even 150 days' quarantine was not a preventive against pleuro, therefore he asked, What is the good of our quarantine laws? After lengthy discussion, the following resolution was carried:—"That the quarantine period be reduced by one-half, and a station be established somewhere on the North-West Coast."

**THE POTATO.**—In connection with the potato embargo, members were unanimously of opinion that the unfair boycott of Tasmanian produce should be discontinued. The following resolution was agreed to:—"That the Minister of Agriculture be urged to bring a test case before the High Court in connection with this matter." The hope was expressed that this subject, and also the question of the quarantine laws, would be taken up by other Boards.

**SPRAYING.**—On the motion of Mr. J. Moore, it was resolved, "That this meeting recommends spraying as a preventive for Irish blight."

**Ringarooma, March 17.**

**PRESENT.**—Messrs. W. H. Phillips (Chairman), A. H. Edwards, R. Thompson, W. Thompson, C. Krushka, W. Conder, J. C. Cox, and L. J. Collins (Hon. Secretary).

**CONFERENCE.**—A letter was received from the Director inviting the Board to send delegates to a conference to be held at Scottsdale. It was resolved that the Board be represented.

**PRODUCE.**—On the motion of Mr. Krushka, it was decided that the Secretary write to the Minister of Lands, requesting him to allow produce to be carried on the railway from Ringarooma.

**Scottsdale West, March 15.**

**ATTENDANCE.**—A meeting was held on the above date, Mr. F. Lawes being in the chair. There was a good attendance, many non-members being present.

**DISCUSSION.**—The subject for discussion was the "Proposed Harbour at Bridport." Two delegates from the Harbour League (Messrs. R. Coplestone and J. B. Hayes) addressed the meeting, and brought facts and figures to bear on their arguments to prove that a port at Bridport would benefit the North-East Coast. A show of hands was taken, the majority being decidedly in favour of the construction of the line and breakwater.

**Upper Mountain River, April 1.**

**PRESENT.**—Messrs. G. S. Parsons (Chairman), T. D. Ball, W. H. Schmidt, C. Schmidt, W. Oates, A. Schmidt, Jun., L. Schmidt, A. Moffat, J. Stevenson, A. J. Stevenson, E. H. Schmidt, and A. Griffiths (Hon. Secretary).

**NEW MEMBERS.**—Messrs. A. Newbon and C. Parsons.

**IRISH BLIGHT.**—The Secretary reported that his attention had been called to the existence in the potato crops of this district of a disease bearing a strong resemblance to Irish blight. He had forwarded specimens of affected leaves to the Department for identification, and had received a reply from Mr. A. M. Lea, the Entomologist, that "the leaves you sent up have the typical appearance of leaves affected by Irish blight." Nearly all the members present stated that the same disease had attacked both their own and their neighbours' crops. They considered that the rapidity with which the disease had spread was simply marvellous. Prior to the meeting it was a disease unknown anywhere in the Huon district; now it was practically everywhere. The Secretary explained that in writing to the Department he had asked that an inspector be sent into the district without delay to report and advise the growers. He had not up till then received any intimation that an inspector had been sent, but stated that in the event of one being sent, he would call a special meeting for the purpose of enabling members to consult with him regarding the disease. After lengthy discussion it was unanimously resolved, "That this Board disapproves of the way in which the Government has so far carried out the provisions of 'The Potato Diseases Act,' by which it has allowed the Irish blight to spread to districts hitherto declared by it to be clean." Discussion ensued as to the best methods of coping with the disease, and here it was felt that advice from the experts was urgently needed.

**SUBJECTS FOR DISCUSSION AT NEXT MEETING.**—"Bitter Pit in Apples," "Rust on Apples," and "Are we Manuring our Orchards Correctly?"

How anyone who has seen the plantations at Cullenswood or the breakwind planted by Mr. Alfred Monnington on the New Country-road, near Burnie, can allow the wind to whistle round his house, taking a heavy toll out of both stock and crop, passes understanding.

Tasmania stands sorely in need of a forest policy. The whole of the so-called "plain" country, of which there are thousands and thousands of acres lying between Smithton and Marrawah, should be producing high-class timber instead of remaining swampy, stunted ti-tree, and heather tracts.

Just as apathy during the past season has cost the potato-grower dearly, so there is surely a heavy toll demanded from each field which is exposed to the icy blasts of winter and the parching gales in summer. It is remarkable that the man on the land studiously ignores this fact when the remedy lies in his own hands at practically a minimum cost in regard to growing his own trees.

## METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING MARCH, 1911 AND 1910.

Station.	1911.	Wet Days.	1910.	Average.
<b>NORTHERN.</b>				
Marrawah .....	—	—	162	228
Cape Grim .....	—	—	201	222
Sunny Hills .....	343	11	162	—
Irish Town .....	314	18	178	—
Black River .....	230	12	126	273
Stanley .....	224	16	148	211
Flowerdale .....	276	12	145	—
Flowerdale, Upper .....	305	12	194	224
Yolla .....	238	15	186	363
Wynyard .....	268	13	112	—
Burnie .....	238	10	158	236
Ridgley .....	321	14	196	—
Ulverstone .....	313	10	149	232
Kindred .....	285	13	—	—
Devonport .....	247	12	152	224
Latrobe .....	—	—	143	193
Northdown .....	209	9	149	184
Beaconsfield .....	327	10	140	—
Low Head .....	251	16	123	196
Black Bluff .....	720	17	313	—
Moina .....	697	22	—	—
Central Castra .....	355	12	210	337
Wilnot .....	458	17	179	—
Gawler .....	209	7	118	243
Sheffield .....	372	12	213	—
Deloraine .....	—	—	—	203
Cavesside .....	537	13	146	—
Cressy .....	592	12	65	142
Longford .....	584	13	58	154
Evandale .....	—	—	37	—
Westbury .....	—	—	79	175
Westbury State School ..	—	—	85	—
Carrick .....	635	14	124	—
Launceston .....	617	14	83	165
Glengarry .....	510	11	155	257
Frankford .....	564	14	210	249
Exeter .....	—	—	204	—
Lilydale .....	548	13	71	194
St. Patrick's River .....	776	12	—	—
Springfield .....	670	19	112	306
Springfield South .....	938	14	129	—
Scottsdale .....	733	15	188	271
Branxholm .....	—	—	129	—
Ringarooma .....	1320	15	166	166
<b>WEST COAST MOUNTAIN REGION.</b>				
Whale's Head .....	—	—	156	—
Mt. Balfour .....	—	—	275	—
Magnet .....	—	—	202	—
Waratah .....	629	19	157	523
Que .....	697	19	—	—
Tullah .....	696	19	129	—
Mt. Read .....	975	24	326	671
Dundas .....	883	20	—	—



## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Zeehan ... ..	854	19	232	593
Mt. Lyell ... ..	1154	21	231	831
Queenstown ... ..	933	16	191	—
Strahan ... ..	510	—	—	310
Cape Sorell ... ..	453	21	224	340
Pillinger ... ..	660	16	252	—
CENTRAL PLATEAU.				
Great Lake ... ..	—	—	103	204
Gronte ... ..	567	16	—	—
Steppes ... ..	805	16	—	—
McGuire's Marsh ... ..	489	11	—	—
Woods' Quoin ... ..	1135	15	—	—
Interlaken ... ..	—	—	125	105
DERWENT VALLEY.				
Glenmark ... ..	—	—	215	—
Dashan ... ..	—	—	188	257
Dsterley ... ..	634	10	—	—
Bothwell ... ..	—	—	59	161
Cleveland ... ..	493	10	—	—
Hamilton ... ..	296	12	77	144
Ellendale ... ..	424	15	159	255
Glenora ... ..	255	12	121	170
Belmont ... ..	—	—	65	151
Clarendon ... ..	188	10	76	177
New Norfolk ... ..	—	—	62	158
Uxbridge ... ..	343	16	172	280
Lachlan ... ..	—	—	73	—
SOUTH-EASTERN.				
South Bruni ... ..	*367	—	218	290
Southport ... ..	*532	—	215	294
Lunawanna ... ..	*206	—	100	—
Port Esperance ... ..	468	10	190	268
Port Cygnet ... ..	*435	—	157	—
Petchey's Bay ... ..	393	17	104	—
Middleton, Channel ... ..	445	15	116	—
Kettering ... ..	627	15	116	—
Franklin ... ..	374	12	—	222
Kingston ... ..	546	13	—	—
Mt. Nelson ... ..	570	10	136	180
Mt. Wellington (Gap) ... ..	1372	19	325	370
The Springs ... ..	1488	19	359	477
Hobart Observatory ... ..	541	18	88	161
Hobart Botanical Gardens ... ..	—	—	103	155
Hobart Waterworks ... ..	—	—	116	246
Glenorchy ... ..	—	—	79	180
New Town ... ..	—	—	—	182
Bellerive ... ..	516	1	106	170
Lindisfarne ... ..	596	13	97	—
Rokeby ... ..	*446	—	85	157
Sandford ... ..	378	11	90	187
Premaydena ... ..	348	10	70	179
Carnarvon ... ..	399	15	164	321
Sorell ... ..	400	13	72	154
Cambridge ... ..	—	—	48	16
Craigow ... ..	—	—	66	—

\* Telegraphic reports only.

## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Richmond ... ..	459	10	69	155
Brighton ... ..	*377	—	68	142
Tea Tree ... ..	459	10	85	—
Bagdad ... ..	710	10	155	169
Broadmarsh ... ..	—	—	134	—
Kempton ... ..	331	14	54	140
MIDLAND.				
Spring Hill ... ..	325	11	75	152
Jericho ... ..	449	12	53	—
Mt. Seymour ... ..	481	12	72	132
Oatlands ... ..	437	16	69	160
Bow Hill ... ..	1123	12	—	—
Andover ... ..	—	—	73	155
Woodbury ... ..	364	12	61	—
Beaufront (Ross) ... ..	383	6	87	127
Bendeemer ... ..	456	12	74	189
Glen Connell ... ..	399	10	72	170
Campbell Town ... ..	323	14	136	135
Hanleth ... ..	402	9	100	131
EAST COAST.				
Kellevie ... ..	863	14	218	—
Buckland ... ..	581	12	115	—
Triabunna ... ..	1380	11	87	165
Swansea ... ..	953	19	68	160
Riversdale ... ..	1360	14	119	184
Cranbrook ... ..	—	—	188	193
Lake Leake ... ..	—	—	145	212
Ormley ... ..	746	12	154	153
Fingal ... ..	948	9	224	156
Cullenswood ... ..	1485	15	230	205
St. Marys ... ..	1825	16	317	—
Tower Hill ... ..	1332	12	219	—
Mathinna ... ..	1918	14	179	226
Scamander ... ..	1210	11	106	200
St. Helens ... ..	1410	17	132	229
Gould's Country ... ..	1978	14	414	366
Lottah ... ..	2397	19	587	505
Poimena ... ..	—	—	739	—
Eddystone Point ... ..	*808	—	144	—
Boobyalla ... ..	538	—	83	171
KING ISLAND.				
Cape Wickham ... ..	—	—	442	169
Yambacoon ... ..	—	—	476	199
Currie Harbour ... ..	—	—	313	—
Monk Breton ... ..	—	—	453	—
Surprise Bay ... ..	—	—	382	—
The Chalet ... ..	313	17	—	—
FLINDERS ISLAND.				
Thule ... ..	—	—	142	281
OTHER ISLANDS.				
Kent Group ... ..	—	—	234	—
Goose Island ... ..	—	—	60	160
Cape Barren Island ... ..	—	—	83	—
Swan Island ... ..	—	—	70	—
Maatsuyker Island ... ..	—	—	232	278

\*Telegraphic reports only.

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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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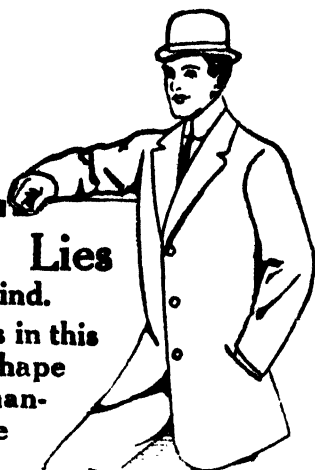
## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

The "Gazette" is sent free to all members of Boards of Agriculture. Any member not receiving a copy should communicate with the office at Hobart.

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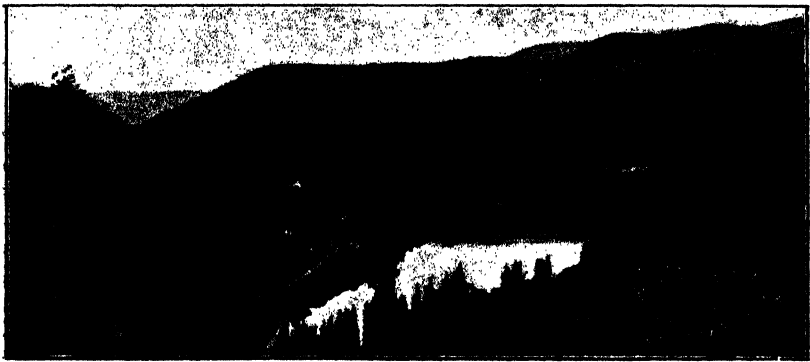
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NEW SERIES.  
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PRICE  
THREEPENCE

## THE EFFECT OF FROSTS IN AGRICULTURE.

NO more valuable means of preparing clay soils for working them into a fine tilth can be utilised than ploughing ground roughly in the autumn and leaving it exposed to the effects of alternate freezing and thawing. The hardest of soil will at the end of the winter be capable of being reduced to a friable condition. This result is brought about by frost coagulating the clay, by which the water is removed from the cementing material it contains, and causing it to shrink. When clay is coagulated the soil has a granular structure; is impervious to water, and can be reduced to powder. Uncoagulated clay will remain permanently suspended in distilled water, and is highly plastic and unworkable. This condition is caused by a small proportion of a colloid cement, as mentioned above. By exposing the soil in a broken condition to the action of frost a very mellowing influence prevails.

The foregoing is in practice largely availed of on heavy lands when preparing a seed-bed. Yet, on the other hand, frost can be guilty of doing great damage to fruit crops and tender plants.

### HOW FROST IS FORMED.

On clear nights radiation takes place from the surfaces of plants, and a deposit of moisture will appear on the leaves if the temperature of the atmosphere does not fall to zero. Should, however, the temperature fall below the freezing point, the result will be what is called frost.



Freeses may be prevented by wind, an overcast sky, or fog, all of which check the loss of heat by radiation. The drier the air and the clearer the sky, the greater the fall in the temperature, with the possibility of increased dew or frost.

The period at which a frost will commence and take place will depend on the weather conditions prevailing; a breeze springing up before daylight or the appearance of a fog may nip in the bud what might have proved an injurious freeze.

There are, of course, certain spots, usually low-lying and protected from the general atmosphere of the surrounding country, where late and early frosts occur frequently, and materially jeopardise the successful cultivation of many kinds of fruit and vegetables. On the other hand, homesteads adjoining the ocean enjoy comparative immunity from sudden falls in temperature.

Generally speaking, frost may be said to be more damaging in the late spring or early autumn than at other times. The explanation is that the more active the plant's growth, the greater the moisture, and the greater the injury that can be effected by cold. During winter growth is slow and transpiration reduced to a minimum, consequently the same plant at that period which could resist frost would in the altered circumstances during the spring, when transpiration would be increased and the leaf-cells charged with moisture, stand every chance of being seriously injured by a light freeze.

#### WHAT CAUSES THE DAMAGE.

The injury resulting from frost does not so much hinge upon the freezing as upon the rate at which the thawing takes place. Plants can be frozen, and, if skilfully handled when the thawing process occurs, the cells will resume their normal swollen or turgid condition and vital activity.

When a frost occurs upon a succulent plant, the cell moisture is withdrawn and frozen, either outside the cell itself or on the surface of the leaf. Should the temperature fall very low the protoplasm may be so affected that the plant, or a portion of it, dies. When, however, no disorganisation of the cell contents takes place, the question as to whether the plant will recover depends upon the power of the cell to absorb the moisture as it thaws out. If the thawing process is very slow the cell may regain its moisture and resume its natural growth, but should this not take place the cell becomes permanently flaccid, and dies.

A remarkable instance of cell vitality, if not carried too far, can be seen on a warm summer day, when the mangold or cabbage leaves lie flat on the ground. This phenomenon is caused by an excessive evaporation, the moisture transpiring through the cells of the leaves faster than it can rise through the roots from the ground. On the decline of the sun's rays towards evening the equilibrium is restored, and the helpless leaves once more become crisp and erect.

Freezing acts in a similar manner to the plant, only the cell moisture is withdrawn by cold instead of heat. Should either condition occur, the

question as to the future of the plan depends upon the cell being refilled with moisture, and so resuming what is called its turgidity; with this distinction—that where heat causes the prostration the period must not be too long, else the cell will suffer internal decomposition, whereas when frost has removed the moisture and thawing takes place, this latter must not be beyond the capacity of the cell in respect to its rapidity to imbibe moisture.

Winter frosts sometimes do a great deal of damage, especially amongst orchard trees growing in cold latitudes. The injury appears to be located in the active-growing tissues between the bark and the wood, or what is botanically called the cambium layer. Ice may be formed in this region of the plant, and after a considerable lapse of time the plant may succumb to a mysterious death.

Late applications of nitrogenous manures are known to prolong the period of vegetative growth, which if not hardened off before the cold weather sets in may be injured by a heavy frost. In America the United States Department of Agriculture, through the weather bureau, issues a daily weather-chart, and by means of it farmers and orchardists can ascertain whether there is any probability of a frost occurring during the next 24 hours.

#### GUARDING AGAINST INJURY.

The question as to the means to be adopted to avert disaster in this respect has to be considered from the point of view of whether the cost of so doing would leave a margin of profit to the grower. Over large areas it is hardly possible to make provision for this purpose on account of the expense, but growers of vegetables and small fruits, &c., might protect their crops by covering them with straw or soil. As has been pointed out, it is not the freezing, but the rapid thawing, which causes the damage, and if the plant is shielded from the morning sun disaster can be averted.

So much has been written, and so much will still require to be written, emphasizing the advisableness of farmers protecting their crops from the cold winds, especially in the higher districts of this State, that this matter will require to be dealt with separately.

In some countries, on still nights—when frost is threatening—the employment of smoke is resorted to. In this connection it should be stated that the burning of wet straw, wet leaves, and sawdust, when dotted in small heaps all over the place likely to be affected, will give better results than large isolated fires. Some authorities contend that damp manure covered with weeds makes the best smudge, and is far ahead of tar and other materials. In some districts in California jets of water are discharged in the form of a mist from cyclone nozzles at a considerable height from the ground. The object is to try and get a fog-like bank of mist over the threatened area, and so save the crops. Where severe winters occur, mulching the ground under fruit trees is carried out, the idea being to prevent the ground around the trees freezing, the result of which, if it did happen, would be that after the moisture had been transpired from the leaves, the supply from the frozen roots would cease, and the tree suffer.

## FORESTRY AT CRESWICK, VICTORIA.

By COL. W. V. LEGGE.

TWO salient points strike the visitor to the extensive plantations and nursery at Creswick: first, the immense amount of work that has been done, and is now in progress, there; second, the absence of any public knowledge of it. All cognisance of the zealous labours of the small school at present in being, and the far-reaching good soon likely to result from them, is confined to the Forestry Department, and those officials who peruse its reports. It is apparently the desire of the Department, as far as the writer could gather, not to make public the excellent work being done under the Chief Superintendent's direction until the school, yet in an immature, though flourishing, stage, shall be permanently established, and in full swing.

As an introduction to the following account, based on a recent visit, it is necessary to state that the plantations have been in existence a number of years, as testified to by the amount of timber sold in recent seasons from the 15-year-old "thinnings" of *Pinus radiata* and *P. laricio*, growing under true forest conditions in the beautiful groves which clothe the hillsides in the forest reserve. The nursery and pineta, however, have only been established within the last two years, and the school for instruction in forestry about the same period.

The town of Creswick is situated on the Ballarat plateau, which orographically is a continuation, at a low altitude, of the Great Dividing Range, starting from the main mountain system at the headwaters of the Goulburn, and which, passing westward through the Yea, Macedon, Ballarat, and conterminous high country, ends at the Grampian Mountains. One reaches the Ballarat high district by the long ascent cut in the hills overlooking the Bacchus Marsh; and on gaining the top, the line runs through level country, enriched with fine basaltic soil, growing excellent crops of potatoes and cereals. The prominent features of this tract are the isolated, rounded hills, which rise from level bases to an altitude of several hundred feet, covered for the most part with timber, and forming picturesque additions to the landscape.

On leaving Ballarat half an hour's run in a northerly direction in the train on the Maryborough line brings one to the town of Creswick, which is at a lower elevation than the "Golden City," the altitude being 1300 odd feet above sea-level. The crest of the Divide is passed through after leaving Ballarat, Creswick being on the northern slope. The country is more broken than on the south side of the range, and round the township are picturesque well-wooded hills, in a niche of which the State forest reserve is situated.

The township is mainly built on the east bank of a creek named after Creswick. In summer it appears to be an "interrupted" or partially-dry watercourse, but which, when running after rains, must form an appreciable stream as one of the headwaters of the Loddon. A capa-

cious rectangular space forms the centre of the town, in the middle of which a bandstand is much in evidence, and towards which broad thoroughfares converge on three sides. The two opposite of these form the main street, in which the chief buildings stand; the third, at right-angles to the street, and leading thence to the railway-station, forms an esplanade, flanked on either sides by residences, and recently planted up the centre with ornamental trees and shrubs, which will soon add considerable beauty to the locality.

#### THE SCHOOL OF FORESTRY.

The provisional school, botanic gardens (with pretty artificial lake), and the "Forest Reserve" are situated on the rising ground of the west, or



*Oaks (15 years old) and Pines, and Forrester's Home, Creswick Plantation.*

proper left, bank of the Creswick Creek. A slight descent from the main street brings one to a bridge spanning the creek, near which are two beautiful examples of the Bhotan Cypress (*Cupressus torulosa*), which now, wanting in lower limbs and showing sturdy trunks overhung with pendant upper branches, no doubt much resemble the tree in its natural forests, and are quite unlike the usual specimens in our Australian "grounds." Across the creek are situated the recreation grounds, on an alluvial flat, at the end of which are one or two well-grown "Bull" Pines (*Pinus ponderosa*).

On passing the recreation ground, we come to the school of forestry, as at present existing. The handsome and commodious villa which is now temporarily used for the purpose stands at the base of the rising ground overlooking the creek. It was acquired not long ago from a medical

man, and was a fortunate purchase, inasmuch as it contains ample accommodation for lecture-rooms, library, sitting-rooms, and dormitories, in which 20 students can be put up comfortably. Everything is beautifully neat and orderly, under the care of the capable lady who is in charge. The library contains some very valuable works of reference, including the monumental work of Professor Sargent, "*Silva of North America*." A noteworthy feature in the class-rooms is a set of air-tight glass-covered cases, in which experiments can be made in testing the life-duration of certain arboreal pests.

The walls of the lecture-room are hung with well-executed chromos of botanical illustrative matter. The curriculum for the students consists of some half a dozen subjects, including botany, forestry, geology, surveying, and other branches of knowledge bearing on the future work, the lectures on which are given by experts and professors from Ballarat, Mr. Johnstone taking his share in them. The students are all young men who are devoted to their work, and who have accomplished wonders by their labour in helping to establish and maintain the plantations, pineta, and nurseries in the reserve. No small item of their work is the control of fire, by the proper upkeep of the "firebreak," burning off for "training" purposes, and so forth, all of which is done at night. Their tuition and drill at this duty is, Mr. Johnstone states, most carefully carried out, so that they are quite proficient in this very necessary work. They are paid a moderate wage, which enables them to board in the town, the dormitories not being as yet occupied.

To the west of the school and its grounds the hill rises steeply, and on the crest, surrounded by trees, is the hospital, which has recently been purchased by the Forestry Department for a college, and when altered and modified for this purpose will accommodate a number of students. There was no time to visit the building, as the thermometer stood at somewhere near 90° F. the day of my trip; but there is no doubt about the magnificent situation of the future Victorian "School of Forestry," the splendid outlook from which, over the well-growing and flourishing plantations, should be an inspiration to the students in their course of instruction. In this connection it is right to mention that a student from the German schools of forestry has recently arrived in Victoria to work for two years in the Creswick school. This is an event which Mr. Johnstone alludes to with no little satisfaction. It appears that the work in Germany is mostly theoretical, the students being sent direct to the forests without instruction in the practical work attached to the nursery, planting-out of young trees, tending, &c., which is the "finger-post" to the road of success in forestry.

On the slope of the hill east of the future college are the botanical gardens, in which can be seen a fair number of well-grown conifers of the better known species. Some of these show a pretty fringing to the artificial lake formed by a dam at the foot of the hill, and flanking the road to the entrance to the forest reserve.

## STATE FOREST PLANTATIONS AND NURSERY.

This area consists of about 1300 acres, lying on the side of a low range with a small intruding valley, all of which is a deserted alluvial gold-field. The soil is a poor loam, very dry on the hills, and in the winter wet in the valley. There is an admixture of dark soil in it in places, which has to some extent benefited the valley by erosion from the hill in later years, and has favoured the carrying out of the useful work done by the Chief Superintendent in the formation of the splendid nursery in the valley bottom. Seven hundred acres form the fine plantations, in which tens of thousands of pine trees with excellent timber boles are now furnishing timber, that works out at £100 per acre. Three hundred are taken up by the valley with the spacious



*Carting Pinus Insignis to the Sawmill, Creawick.*

reservoir recently constructed, numerous extensive arboreta, and some tracts still to be planted, leaving the residue yet to be dealt with as found most advisable. At the inception of the planting operations the soil, though poor, was ascertained to include the most favourable conditions of growth, particularly as regards conifers; the climate, also, with its winter snowfall and hot summers was found to be entirely suitable. It only remained, therefore, a question of how to obtain a sufficient water-supply for the first and early stages of growth. This was solved by the success attending Mr. Johnstone's efforts to grade the surrounding slopes and get sufficient rainfall drainage into the valley-site chosen for an experimental reservoir. With an ample supply, lasting in this hollow, as it did last year, all doubts as to the success of the scheme were set at rest.

On entering the reserve from the high road, the main approach to the plantations and nurseries leads up a spur, on which arboreta are set out. Their arrangement on either side of the broad walk is most interesting. They comprise eight sections planted out to represent the forest flora of distinct and important geographical regions, as follows:—

- (1) Western North America.
- (2) Western Australia.
- (3) Eastern North America.
- (4) Northern and Temperate Asia, including Japan.
- (5) Southern Europe and the Mediterranean regions.
- (6) Eastern Australia and Tasmania.
- (7) Southern Asia.
- (8) North and Middle Europe.

In all of these areas the recently-planted trees are flourishing, some showing surprising growth, young pines two years old being several feet high. In the Australian arboretum there is a fine collection of wattles, which with the habit of quick growth common to this genus, will soon make an effective show. In it Mr. Johnstone gives the palm to *Acacia mollissima* for beauty and economic value. Large tanks are erected in suitable spots in the sections, and supplied by an 18-foot windmill erected at the arboretum lake. Thus, with a liberal supply of water during the next few years, the arboreta will clothe the hillside with a luxurious flora, which will be typical and most instructive to the students of the school.

### POTATO-GROWING.

THE following tabulated statement (taken from the "North British Agriculturist") relating to some experiments carried out at the University Farm, Cambridge, England, shows in a striking degree the effect of change of seed in the yield of potatoes:—

Variety.	History of Seed.	Total Crop.		Increase due to Change.	
		T.	C.	T.	C.
Up-to-date ...	Five years in Cambridge ...	4	17	...	—
„ ...	Fresh from Cromarty ...	14	13	...	9 16
British Queen	Three years in Cambridge ...	5	3	...	—
„	Fresh from the Lothians ...	15	13	...	10 10
Northern Star	Three years in East Anglia ...	4	15	...	—
„	Fresh from the Lothians ...	17	13	...	12 18
Factor ...	Three years in Cambridge ...	10	10	...	—
„ ...	Fresh from the Lothians ...	15	8	...	4 18
„ ...	Grown in Cromarty, 1904, from Cambridge seed ...	11	12	...	—
„ ...	Grown in Norfolk, 1904, from Cambridge seed ...	9	6	...	2 6

## GARDEN NOTES FOR JUNE.

By J. OSBORNE, JUN., Horticultural Instructor.

### KITCHEN GARDEN.

**D**URING this month preparations for the coming spring may be made, spare beds being well dug up and manured. Peas (McLean's Little Gem, American Wonder, Stratagem, and William Hurst) to be grown for first crop. Broad beans (Johnson's long pod, Broad Windsor) should also be sown for first crop. Towards the end of the month Daisy and Yorkshire Hero peas may be put in in early situations to follow the early crop. In rather dry situations a few cabbage, cauliflower, and lettuce plants may be planted, and a small sowing of onion, spinach, carrot, turnip, parsnip, and radish made. Where it is intended to put out new beds of rhubarb, asparagus, and sea-kale, the work should be put in hand without delay. Secure strong crowns of rhubarb and kale that have not been cut out too closely. Strong asparagus plants should be chosen, one year old if strong enough; these should be planted with the crowns at least 5 inches below the surface. Small fruits, such as currants (red, black, and white), gooseberries of sorts, raspberries, and strawberries, should be planted without delay. The young trees should be cut back closely, in order to promote growth for the next year. The best raspberry to plant is the Northumberland Fill-basket variety. Of strawberries, Royal Sovereign, Melba, Trollopes, Victoria, and British Queen are about the best. The raspberries should be put out in lines 4 feet apart, and be 18 inches from plant to plant in the rows or lines. In the case of strawberries the distances should be 3 feet 6 inches between the lines and 1 foot from plant to plant. Beds that are unoccupied should, after manuring liberally, be dug up deeply, and allowed to remain for a time. Towards the end of the month a good-sized heap of fresh stable manure should be collected and turned over several times, in order to get it mixed thoroughly. Should dry weather be experienced, a good wetting must be given. After this—in about seven days—the material will be fit for use. Put it up in a shapely heap, and place thereon a box or frame with a glass cover that is movable. Put in a few inches of good clean soil, and allow to remain till the heat comes up, when tomato seed may be sown. Do not water while the soil is at all moist. All borders should receive attention, cutting in where necessary.

### FLOWER GARDEN.

Most flowering plants will now be past their best. The majority of the annuals may be removed, and the beds, after being supplied liberally with manure, dug up. A few stocks, wallflowers, dianthus, carnations, antirrhinum, and gaillardias may be planted. Hardy shrubs—roses, peonies, tree, herbaceous, &c.—should be set out. All rooted cuttings may be lifted, and where not required should be run out in nursery lines



for future use. On wet days seeds may be cleaned and made ready for use. Bulbs, such as the Tiger lily, Japanese, and many of the amaryllis, may be planted in well-prepared beds. Towards the end of the month a bed of gladioli (*Groff* or *Gandavensis*) may be put in for early flowering. Many herbaceous plants will be ready to divide, and new beds may be prepared. All dahlias should be lifted and stored, and narcissi that have been kept dry should be planted without delay. Make ready a good sandy bed for rose cuttings, which should be planted during the month. Sow a few sweet-peas in a warm, moist situation. A few pansies should also be put in.

#### GREENHOUSE.

All plants under glass should be given water only where they are dry. Tuberous begonias that have ceased growing should be placed in a dry corner, the pots being laid on their sides. Gloxinia and all gesneraceous plants may be carefully dried off and placed in a safe place. Cineraria and calceolaria, where the pots have become filled with roots, should receive liquid manure twice each week, being watered as usual with clean water before applying the liquid manure. Ventilate freely during fine weather. Chinese primulas that have not been placed in permanent pots should be attended to without delay. These plants should be watered carefully. Palms, ferns, and rex begonias may be attended to; that is, freed from weeds, dead leaves, and fronds during wet weather. Cyclamen, where they have made good growth, may be potted, and placed in a light, airy place. Water carefully. It is best to withhold the water during dull weather. Should aphids appear, a light fumigation with tobacco should be given, a quiet, still night being chosen. Pelargonium cuttings that have become rooted may be put into  $3\frac{1}{2}$ -inch pots, the cuttings to be dipped in tobacco water or a mixture made from Gishurst's compound. The cuttings that have failed to root may be put in again, and allowed to remain till the spring.

#### PEDIGREE SHORTHORN CATTLE.

His Excellency (Sir Harry Barron) has received despatches from the Under-Secretary of State for the Colonies, dealing with the facilities afforded by the Royal Dublin Society for the purchase of the above-mentioned cattle.

## SOME POINTS WORTH THE ATTENTION OF TASMANIAN FARMERS.

By H. J. COLBOURN, Agricultural Chemist.

### CLIMATIC CONSIDERATIONS.

TASMANIA varies considerably in temperature, according to the elevation of the district above sea-level; the greater this is the lower the temperature tends to be, and the greater the liability of the locality to suffer from frost. Low-lying land near rivers, however, frequently suffers more in this respect than that which is moderately elevated. At least frost does more injury when associated with a moist atmosphere than a dry one. It is well known that the elevated land which forms the central plateau of Tasmania experiences much colder and more inclement weather during the winter months than the land lying nearer the coast, which besides being at a much lower level is favoured by its proximity to the sea, which tends to equalise temperature, rendering the summers cooler and the winters warmer of districts exposed to its influence. Temperature considerations naturally influence the choice of crops to be grown in any locality. The colder country of the midlands adapts it very much better for the successful growth of the turnip, which is a most valuable crop to the farmer where it can be successfully grown, especially in connection with sheep-raising. With regard, however, to the mere influence of temperature upon its growth, the turnip might be grown anywhere in Tasmania if it were not for the fact that it is very liable to aphid attack in the warmer localities of the country. Before the introduction of the aphid pest, or cabbage blight as it is sometimes called, the swede turnip was an important crop upon the North-West Coast of Tasmania. Fenton, in his "Bush Life Fifty Years Ago," states that instead of growing mangolds for stock it was swedes everywhere, and that no one thought of keeping stock without his paddock of turnips. At the present time the turnip is a hazardous crop, except in the colder localities of the country, where it usually yields a good crop if manured with superphosphate. Fortunately the mangold is exempt from the aforementioned pest, and is, indeed, a crop peculiarly exempt from natural enemies. It can be grown in the colder localities, but does not ripen well for stock-feeding if the temperature is too low or the situation too damp. The late Dr. Voelcker, who was a great authority in connection with this root, pointed out many years ago that any locality where it was necessary at times during the evenings of the summer months for a man to put on a top coat was unfit for growing the mangold successfully. The crop might, of course, grow and yield fairly, but there would be a want of development of sugar in the bulb; and, apart from that, a mangold imperfectly ripened is liable to have detrimental effects upon stock. It is for this reason that farmers in England, who clamp their mangolds, i.e., cart them into sheds or store them in heaps protected by a covering from the weather, seldom start using them as food for stock until after

midwinter, when they have attained the proper degree of ripeness, which they gradually do if a sufficient degree of maturity has been arrived at in the open ground. It is probable that the mangold would come out much better food for stock if clamped in this country, for if left in the open ground the root retains an excess of watery matter, which lowers its feeding value, and retards the ripening process. This point of the proper ripening of mangolds is, I am convinced, one that deserves very much more attention from the farmers of this country than it has yet received, since it is highly probable that the injurious results to animals (accounts of which sometimes come to hand) from feeding them with mangolds is entirely due to the imperfect ripeness of the roots supplied to them. The climatic conditions of the East Coast must be more favourable to the ripening process of the mangold in the open ground than elsewhere, but Mr. F. Shaw, who farms at Swansea, at one time told me he always pulled and stored his roots, and considered that it paid him to do so. The slow oxidation going forward in a covered heap of mangolds naturally raises the temperature of the whole mass, and tends still further to complete the process of ripening, so that an artificial climate is produced, and compensation brought about for the outside deficiencies of Nature, which is in strict analogy with the substitution of the heated glass house for the tropical climate. Whilst speaking of the glass house, this seems to have been an institution much more in evidence years ago than to-day, judging from the dilapidated remains of several which exist about Hobart. Glass could hardly have been cheaper then than now. so I suppose the production of early crops of fruit upon the mainland of Australia has rendered such institutions as glass houses superfluous. Where crops are of sufficient value some means for affording them protection from the injurious effects of frost is desirable, and probably light frameworks which can be covered with mats at night would prove useful, especially in connection with such crops as the tomato, which could then be produced much earlier. And it is certain that home-grown tomatoes are always better flavoured and more saleable than imported ones, which have to be gathered partly ripe on account of transit conditions, and on this account are always inferior.

Temperature conditions affect stock, and in Tasmania too much advantage is taken of the comparative mildness of the winters in respect of sheltering stock during the colder months. Paddocks in which stock graze are too frequently very bleak and open, especially in the long-settled districts. Under such conditions much of the food partaken of by animals so exposed is used up wastefully in keeping up the temperature of the body to its proper standard. Cows do not yield so much milk in these circumstances, and young animals do not grow so fast, and tend to become stunted, especially if food is not abundant. Wind-breaks of any kind, especially belts of coniferous trees, are very useful in default of warm sheds, which it may be inconvenient or expensive to build. Draining a paddock renders the soil warmer, both for stock and crops, and when draining is carried out over a considerable extent of

country a great influence is thereby produced upon its climate, which tends to reduce attacks of rheumatism and catarrh to a minimum—with advantage both to man and beast.

#### THE SOIL.

In the preceding paragraphs some observations of a general character bearing upon the climatic conditions of Tasmania have been made. I have now to speak of these in their more immediate connection with the preparation of the soil for cultural purposes; and to render my remarks clearer the leading facts pertaining to the physical structure and chemical composition of the leading types of soil of this country must be taken into consideration. In the first place, sand and clay are the leading ingredients of all soils capable of successful cultivation. These substances exist in varying proportions from the approximate half-clay and half-sand mixture, which constitutes the best loam soils, to the stiff clay containing 90 per cent. of the latter substance; or the sandy soil which contains less than 10 per cent. of clay. Sand is sometimes composed of minute plates of mica, but is commonly a collection of fine particles of quartz, or silica as the latter is chemically termed. Pure quartz sand is incapable of furnishing food to plants, but in due admixture it renders clay permeable to water and promotes its friability, so that it becomes less stiff, and consequently easier to work and more permeable to the roots of plants. Whilst therefore sand furnishes no plant-food, its presence in the soil is nevertheless indispensable from the point of view of the physical benefits which it confers. On the other hand, the nearer a soil approaches a clay-free condition the more it becomes the sport and toy of the winds, until the expression a "blowing sand" becomes applicable to it. Indeed, it is often a risky business in windy situations to plough up very sandy soils which may have become covered with a surface mat of native vegetation; for, if the latter is removed, it is more than likely that disastrous consequences will follow. With reference to clay as a component of the soil, it is the one substance needed to give the latter its requisite degree of coherence and stability, together with the capacity to retain sufficient moisture for the purposes of vegetation during dry weather. Also, clay, having been weathered down from rocks containing potash and other mineral substances capable of furnishing sustenance to plants, it may be regarded not only from the point of view of its physical properties, but, further, from that of its chemical attributes, which are very important. By proper treatment of the soil, cultural and otherwise, it is possible to do much to render these chemical constituents available for plant-nutrition, thereby promoting the growth of crops and effecting a saving in the manure bill. How this can best be done will be considered further on. Another important constituent of the soil is the organic matter which has found its way into it from external sources. This consists of the residues of former vegetation which has occupied the land surface; also of the dead roots which have penetrated downwards to the limits of plant growth, and any animal remains, including dead insects and similar organisms,

which by any means may have found an entry into the soil. This organic matter, when its decay has sufficiently advanced and it has become mingled with the soil, goes by the name of humus. Now, this humus has two properties analogous to or identical with clay, and those are its ability to furnish plant-food and retain moisture, in which latter property it appears to excel clay. Because humus exhibits these two functions, it is usually regarded as of less importance than a clay soil should be well stocked with it than a light soil; hence a green crop is generally ploughed in upon the latter rather than upon the former. The great value, however, of organic matter in rendering clay soils friable and easier to work should be taken into consideration. This is owing partly to the generation of carbon dioxide gas, which takes place in the process of fermentation and decay of the humus, and this has the effect of loosening the particles of the soil. If we were to mix soil and bicarbonate of soda together and then pour some acid upon the mass it would be seen to rise up as the bubbles of carbon dioxide gas escaped from it. Now although the ordinary processes operating in this direction in the soil go on slowly, and the generation of the gas is brought about by decay instead of being produced by the action of an acid, nevertheless the effect is the same, and the soil is left in a more or less hollow and friable condition. Moreover, as water percolates through the soil it dissolves much of the carbon dioxide gas contained in it, converting the latter into carbonic acid, which acts as a powerful solvent upon the mineral matter contained in the soil, especially that which contributes to plant-nutrition. The amount of humus in the soil, provided it is not in excess, as occurs in peaty soils, is a fair index of its fertility, whilst the exhaustion of this material correspondingly points to a condition of poverty. It is true artificial fertilisers can be applied to the land, and these will supply the chemical elements required by crops, but fertilisers cost money, and it is not good economy to depend upon them alone, for, in addition to the large outlay entailed by their exclusive use, their tendency often is to increase the compactness of the soil. Even if this result is not brought about, artificial fertilisers fail to promote that friability and capacity of the soil to retain moisture which the use of farmyard manure or the ploughing-in of green crops brings about. As adjuncts to the use of the latter, and applied in their proper place, artificial fertilisers are most valuable, but their chemical properties will not, as indicated above, enable them to exert the salutary physical effects which the bulky organic manures are capable of doing. The fertility of the virgin soil, a term commonly applied to that which has recently been covered with forest trees or other natural vegetation, is well known; also the excellent crops which usually grow upon freshly broken up grass land need scarcely be mentioned. This fertility is mainly due to the fact that such soils are charged with a maximum amount of humus, which is capable of rendering up all the elements needed for the sustenance of crops, whilst on the other hand the soil is in a favourable physical condition, both for the free passage of plant roots and also for the retention of moisture.

*(To be continued.)*

## THE CONTROL OF IRISH BLIGHT IN POTATOES.

**Q**UITE recently, in the course of an interview with the Director of Agriculture (Mr. A. H. Benson), Mr. E. C. Pratt, an English potatogrower, stated: "I am of opinion that the Irish blight in Tasmania can be greatly reduced, if not destroyed. To commence with, the profitable lifetime of any variety of potato is from 15 to 20 years, and when any one variety is grown beyond that number of years it loses its constitution, and consequently is more liable to disease than a new variety of stronger growth. My firm belief is that the present varieties grown in Tasmania commercially should be discarded, and new and disease-resisting varieties should be imported from England or Scotland, the latter being the rearing-bed of the potato world. I am sure this new seed would produce heavy crops free from blight."

On the question of spraying Mr. Pratt was very emphatic. He said:

"I would also recommend that spraying be carried out; the more times the better, as each spraying will increase the yield of the crop considerably, and at the same time prevent disease."

"Potatoes should not be grown on the same ground oftener than one year in three. Artificial manures have been proved the best for the tuber, provided they contain a fair percentage of ammonia. . . . Ploughing in green crops, such as peas, oats, and mustard, will get the land in good heart and supply humus as well as furnish a considerable amount of organic nitrogen."

"Potatoes should always be lifted when mature, and not allowed to remain in the land to harbour disease. . . . All precautions should be taken to prevent disease, but the two most important items are:—

1. To get entirely new stocks of seed from England or Scotland.
2. Continuous spraying, which will prevent any disease making headway, and at the same time put money into the pocket of the grower, as every spraying increases the yield."

Mr. Pratt gained his experience in South Lincolnshire, England, the largest potato-growing district in Great Britain, where on their own farms they grow upwards of 300 acres of potatoes yearly. At one period they had "blight" badly; to-day they are clear of it, although Mr. Pratt said: "I am sure it would soon break out again if we omitted changing our seed from Scotland, or from spraying at least three times. . . . In England we often have to accept £2 per ton f.o.b. on the railway for our potatoes, and can make a profit at that price, because we get such good crops, due to *continuous spraying*, which keeps the plant growing until the very last, and in odd cases we have had to mow off the tops to ripen off the crop."

The Director of Agriculture desires to point out that under the existing regulations of the Commonwealth potatoes are prohibited from Great Britain and all countries in which Irish blight is known to exist. The relaxation of such prohibition is a Federal matter.

## DISEASE OF THE HOP-VINE.

By L. RODWAY.

THE stock of a hop-vine badly diseased and mostly dead was forwarded for examination. The condition was similar to that of plants submitted about a year ago. The tissues are everywhere permeated by fungus hyphæ, which in the looser portions form sheets of white fungus growth. There is little doubt but that the fungus present is directly the cause of death of the plant, though there is still a possibility that the fungus may have followed immediately upon injury due to other causes. This can only be satisfactorily ascertained by careful examination upon the spot.

There are a great many fungi capable of doing this mischief and presenting just the appearance of the one before us. It is quite impossible to discriminate one from the other in the present stage. Fungus hyphæ of the larger groups are so much alike that there is no distinctive mark by which they can be known. There are in Tasmania probably a thousand species, one of which could not be told from another in the present state. We could only select out of this large mass those which in our experience we have known to attack wood in this manner. Even that would be unreliable, for under exceptional conditions a fungus may considerably alter its habit. Thus the common blue mould, *Botrytis cinerea*, is under ordinary conditions a harmless saprophyte living upon and decomposing dead leaves; but in an unduly protected vinery it will become a rabid parasite, destroying berries, leaves, and young shoots with avidity. In the case in point there is no sign of any form of fruit, therefore it would be a wild guess to suggest a name. Under any condition, if the fungus present is the cause of death (and there is very little reason to doubt it), it is evident this fungus has its natural habitat in dead wood, and its advance into, and destruction of, living tissue is acquired; that is, it is not entirely a parasite. It may be an imported disease related to the white root rot (*Rosellinia necatrix*, Pril et Del), but at present I doubt it. On the other hand, it may be one of our numerous fungi that revels in dead wood, and is under the favourable conditions present assuming a destructive habit on the underground portions of hop-vines.

It is not possible to say further till fruit of some kind has been found in connection with it, and it is advisable to have the affected area constantly under the supervision of a competent expert.

When once a vine is attacked, its death may be considered certain. It should be dug up and burnt, as the fungus will spread in the soil from plant to plant. The area in which a diseased plant was growing should be deeply trenched round and the soil thrown into the isolated area. As the fungus has its home in dead wood all such material should be removed from the soil and burnt. The bases of all poles should be thoroughly saturated with bluestone or other fungicide, and no rotting pole be left in the ground. The presence of the fixed poles of the modern hop-field must be understood to be a menace, and their condition below the surface should be periodically examined, and rotting prevented or the diseased pole removed. Drainage should be watched. Any condition of stagnant water will greatly favour the disease.

## FROST AND ATMOSPHERIC INFLUENCES ON SOILS.

THE word pulverise is often employed to express the action of frost on soils. It is derived from *pulveris*, dust, and *pulpa*, the pulp of fruit, and indicates an extremely fine state of division, often described as impalpable, and illustrated by the smooth, greasy condition of clay and vegetable soils when passed between thumb and forefinger. This condition may be artificially produced by trituration in an agate mortar, but is not easily effected, and this shows the enormous force which must have been expended in producing an ordinary fertile soil. This is rendered the more striking when we remember that clays were originally derived from granitic rocks, and all soils (excepting their organic matter) from previously existing rocks. Soils, above other things, suggest those striking lines: "Though the mills of God grind slowly, yet they grind exceeding small," for they are the long result of geologic ages, and especially of the action of ice and water. It is also interesting to note that the "mills" which began the work of pulverisation are still in operation, and, although silent in their action, are as potent as ever. The glacier still ploughs its way down the mountain sides, and the disruptive power of water, as it changes into ice, still acts every winter upon the soil, further reducing its intractable parts, and increasing the amount of its finely-divided matter. It is well occasionally to indulge in a wide view, and certainly the grandeur of the above process, as measured by its power and its duration, is sufficient to impress any thinker. Well may we exclaim, "As it was in the beginning, is now, and ever shall be."

### EXHAUSTION OF THE SOIL.

It affects the question of ultimate exhaustion of the soil, for as long as there remain intractable and unreduced fragments of rock, freely scattered through a fertile soil, there is a warranty as to its potential fertility. The action of frost in heaving up roads and soils extends into the heart of every porous piece of sandstone or chalk into which moisture can penetrate. It is seen on the faces of quarries, and gradually effaces inscriptions on stone. Wherever water penetrates, and congelation follows, there is generated an irresistible disruptive force. The expansive power of water as it passes into the solid state is so great that the strongest vessel cannot withstand it. If, for example, an iron bottle, however strong, is filled with water, and tightly screwed down, it will burst if immersed in a freezing mixture, as soon as the change is effected. This is a common lecture-room illustration, but is exceedingly impressive, and never to be forgotten. Similar effects may be noticed after frost in the fields, for lumps of chalk will be seen to be shivered, and even flints exhibit signs of disruption. The entire surface is heaved up, and if



we could examine the mass of soil below, we should find every particle affected, as though it had been charged with dynamite. The silence, and absence of explosion, is part of the wonder, especially when contrasted with the vastness of the operation. No wonder, then, that we should regard frost as a tillage agency far exceeding in power any instrument which we can bring to bear upon the soil. That it increases fertility is due to the fact that it liberates the mineral constituents of rocky fragments, and adds them to the finer mass of soil, to be further acted upon by atmospheric actions of various kinds. This effect must not be exaggerated, for it is gradual, but it is certain that all the available mineral matter in soils is principally due to its action.

#### BACK TO THE ICE AGE.

It is, however, not entirely to be attributed to it, but also to the action of ice, in the form of glaciers, during remote glacial periods. To understand soils we must go back in imagination to those far-distant times when what are now temperate and even tropical regions were covered deeply with frozen rivers of ice, which, although apparently fixed, yet moved slowly down the mountain slopes, grinding and scarifying their rocky foundations. Anyone who has stood on the Alps and watched the turbid and muddy streams issuing from the tails of glaciers; spreading over the plains below, leaving tracts of alluvial soil, will realise how soils were made. Anyone who examines a field after a severe frost will also realise how soils are maintained in fertility, and how it is that tillage, assisted by periodic frosts, may keep up fertility, as Jethro Tull taught, without manure. Tillages are feeble in their action compared to frost, but they are especially important as a means of exposing fresh surfaces to its action. A plough cannot break up particles of intractable minerals, but it can bring them up from a zone in which frost could not affect them, and expose them to its influence. This is why autumn ploughing is found to be particularly efficacious. Frost, or rather the change of state of water from liquid to solid, is the most potent means of disintegration, but there are others which act continuously and later. These may be spoken of as atmospheric, and are largely due to oxidation.

#### ACTION ON MINERAL MATTER.

The oxygen and the carbonic acid, which always exist in small quantities in the air, act on mineral matter, and combine with it, forming oxides and carbonates. It is one of the marvels of nature that a feeble acid like carbonic, which is easily driven out by, say, sulphuric acid, with brisk effervescence, will gradually drive out and take the place of the same acid, slowly converting sulphates back into carbonates! Carbonates are also changed into bicarbonates, which are still more soluble, and, in fact, is the explanation why stalactites are formed on the roofs of caves. Sulphate of lime converted into carbonate, then into bi-carbonate, and finally back again into the less soluble form of carbonate, is not only the explanation of stalactites, but also of the filtration of

lime through the soil, and its reappearance as pans in lower strata. This is why many old pastures, originally derived from limestone rocks, are found to be deficient in lime. It has been converted into soluble bi-carbonate, and been carried down in solution and reprecipitated at a lower level. These changes require moisture and vegetation, and consequently a higher temperature; so that we see clearly how frost and ice unite their action with summer temperature and vegetation in effecting wonderful changes in the soil. The presence of the protosalts of iron and sulphur in soils, as well as of partially decomposed and sour matters, is always injurious, and it is exposure to the air (oxygen) which converts them into the food of plants. Tillage acts indirectly more than it does directly, as it exposes the recesses of the soil to free oxygen. It brings the under soil out of the de-oxidising influences of decaying vegetable matter, and exposes it to oxidising effects, and thus "sweetens" it, rendering it innocuous, and beneficial for growing crops.

#### VALUE OF TILLAGE.

It is difficult to apportion the good effects of tillage and the benefits of manuring against each other. Probably both are equally important, but it is certain that each of them is powerless without the other. At this season of the year the silent agencies above referred to are in active operation, and everyone knows the importance attached to frosts as a means of preparing land for spring sowing. Perhaps some practical men may not fully recognise the fundamental importance of ice and snow, frost, and vapour as agencies which not only improve the soil, but to which its very existence is due. Nothing can show the importance of geology in its bearings upon agriculture more than a study of glacial action and of the expansive force of water. To them soils owe their origin, but their character and composition are also due to the changes in temperature, and the influence of vegetable growth during the changes of the seasons.—[JOHN WRIGHTSON.]

#### VALUE OF ROTATION.

"The value of a judicious rotation is not taken at its true worth," writes the "American Agriculturist," "notwithstanding all that has been said upon the subject. In many instances it is not taken at half its worth. In certain experiments conducted at the Minnesota Experiment Station it was found that as much wheat was obtained in the one instance from three crops grown on the land that had produced grass during the three previous years, as was obtained on similar land that produced wheat only during the same six years. The land in both instances was old and worn. In the first instance, the three crops of grass were secured in addition to the wheat. No fertiliser was used in either instance. The increase in the yields of wheat must be attributed to the influence of the grass-roots furnished to the soil. How long will it be before vegetable matter is taken at its true worth? The most practical way of putting such matter into the soil is by growing on it a crop of grass or clover."

## FORESTRY NOTES.

By L. RODWAY, Government Botanist.

No. 10. BEECH, WILLOW, AND OTHERS.

(Continued.)

THE *Black Walnut* (*Juglans nigra*, L.) is an American tree, very like our Common Walnut (*Juglans regia*, L.). It grows much faster than that tree, and yields a splendid timber very useful for higher class furniture, house-decoration, and such like purposes. It is suitable for planting wherever Oak will thrive, and is a very good species to intermix with that tree. Though a tree which requires time to mature, it is of commercial value when still of small dimensions. If planted on land not required for agricultural purposes, or where good land is too rocky for such, it is every year adding to its value. Though it would be unwise to harvest it too soon the standing trees are always an asset. Land carrying a quantity of good timber that may be reaped at will must always fetch a higher price than similar land without such trees. By the time Walnut shall have attained marketable size population will have grown, the price of timber will have risen, and our successors will not look upon their trees as we look on ours now, but will estimate them as they are valued in the Old World.

*Hickory* is the popular name of sundry species of the American genus *Hicoria* or *Carya*. It is nearly related to Walnut. It yields a flexible, tough, easily worked wood, for which there is always a demand. It is somewhat similar to Ash, but is heavier, harder, and tougher. It is much used in carriage-building, axe-handles, &c. Shell-bark Hickory (*Hicoria ovata*, Britton = *Carya alba*, Nutt) does well with us, and is worthy of consideration.

*Locust* (*Robinia pseudacacia*, L.) and *Hardy Catalpa* (*Catalpa speciosa*).—These trees produce very durable woods suitable for fence-posts, but as our native Peppermints give us ample wood of most durable character there appears no reason why we should look further. Hardy Catalpa has been much praised in the Eastern States of America and New Zealand, and we are often advised to plant it here; but our conditions do not seem what it requires. In the greater part of Tasmania the rainfall is not sufficient to ensure its attaining a useful size.

*Sweet Chestnut* (*Castanea vulgaris*, Lam.).—This tree not only yields a useful and remunerative nut, but gives a valuable timber. It is hardy, so need not be confined to low-lying districts, and is not particular as to the mineral conditions of the soil, but it does not like that of a very retentive character, or which is permanently wet. It prefers a light, deep, fresh, rather moist locality. Nisbet says of the wood: "It is a very tough and durable kind of timber, and lasts even better than Oak or Acacia when used as poles or posts in the ground. Many old beams in

churches, long supposed to be Oak, are really Chestnut. It makes beautiful wainscoting, flooring, or furniture, somewhat higher in colour than Oak, but often very prettily flowered and marked. It is well suited for cart-poles or wagon-shafts, also for gate-posts and general fencing purposes.

Though there are many other broad-leaved trees well worthy of planting, the above described species will be quite enough for the forester to give his attention to for a long time to come, and all of them have proved their suitability for growth in Tasmania.

The concluding article will treat of the introduction of desirable Australian Eucalypts and the growth of our native species under true forestry conditions.

#### 11. - EUCALYPTS.

The main objects of these articles were to point out what was to be gained by planting trees not native to the State, to draw attention to those trees most likely to repay us, and to give some general idea of the requirements of introduced trees. It was not intended to do more than touch upon the natural conditions of forestry, therefore this chapter will leave unsaid a great deal worth recording about our native timber trees; but it is very desirable to touch upon some details of the forest aspect of Gum-trees.

Throughout the Commonwealth the Eucalypts constitute the principal feature of our forests, and on them we depend not only for the largest part of our wood-supply, but for the greater part also of the timber we export. Not only is this so now, but it will have to continue so practically for all time, because, whatever efforts we may make to acclimatise useful exotics, our climatic conditions are such that they can never supplant the native species. Nor is this desirable, for we have in our Eucalypts timbers of a class which for rapidity of growth, variety, and utility, are not surpassed by any group of timbers in the world.

There is another reason already touched upon why we should hold our native trees in respect, and that is the very fact of their being native proves their suitability for their surroundings. However well introduced trees may do for a period, a century is all too short a time to prove that they are going to be a permanent success in Australia.

The records found in sedimentary rocks are not always translated with undoubted precision; still, there is reason to accept many of the identifications of leaf impressions as correct, and to conclude that in comparatively recent times many genera of broad-leaved trees, now confined to the northern hemisphere, existed in Australia. If that is so, what caused their extinction? A few beeches have survived, why not the rest? Invasion of a new and more suitable type, as the Eucalypts and Acacias, would no doubt have depleted, but would hardly have quite exterminated, them. Many causes may have been responsible, and what we have to consider is that these causes may still exist, though at first sight they may not be apparent.

A virgin forest is never an economical condition of tree growth, and this is more noticeable in a Eucalypt forest than that of most other kinds of trees. Where conifers abound nearly every tree is in a suitable condition to be reaped. In an Oak or an Ash plantation the majority of the trees yield a sufficiently good return to warrant their all being taken off at maturity. With our Eucalypts only too often it happens that only a tree here and there will repay cutting, a very great number being twisted in the grain, rotten at the heart, or maimed in growth. This is unavoidable in the natural forest, but can be considerably altered by art. It is one of the principal purposes of scientific forestry to condemn at an early stage all weaklings, and so foster a plantation as to produce only trees that will give good returns. This ensures also that every acre of forest shall bear the greatest number of payable trees that space will permit. We cannot apply this to our virgin forests, but the time is coming when some definite plan of Eucalypt planting in denuded districts should take place, and when this is done true forest principles should be adopted.

It is simply our familiarity with Gum-trees, the ease with which our wants of their timbers are supplied, and our ignorance of the conditions existing in many northern countries that cause us to overlook the wisdom of planting at least experimental woods of Eucalypts; but considering the lengthy period that must elapse between the planting of such areas and their maturity—that is the period required to teach us what we require to know of the improvement of Eucalypts subjected to cultural conditions—it is quite time a start was made.

We want to know under what conditions of soil, climate, and cultivation our Gum-trees will yield the best return; which of our native species are best fitted for cultivation; what species will pay us to introduce from the mainland; also what results will be produced by the growth of Eucalypts with various other trees, as Blackwood, broad-leaved exotics, and introduced conifers.

We can note that Eucalypts are most accommodating as to depth and quality of soil, so that they will lend themselves well for afforestation of districts quite unsuited for agricultural or pastoral purposes. The principal matters affecting their growth are conditions of temperature, water-supply, and protection from high winds. The two last conditions need not detain us, for except Cider-gum none of the better kinds requires moist soil, and all of them will find sufficient protection from mutual support in forest growth, especially if bleak ridges are avoided; but most Eucalypts are sensitive to conditions of temperature in degree according to species. For this reason chiefly they are found in zones corresponding to altitude. Blue-gum, Stringy-bark, and Peppermint thrive in Tasmania only below 1000 feet. Urn and Brown Gums succeed only between 2000 and 3000 feet, and Cider-gum above that height. That this is due to requirements as to temperature, and not other conditions, of altitude is indicated by the first group only living under protection in England, while the other three are doing well there out of doors at a low elevation.

The following native Eucalypts are deserving of experimental growth under strict scientific conditions:—

- Blue-gum = *E. globulus*, Lab.
- Stringy-bark = *E. obliqua*, L'Her.
- Black Peppermint = *E. amygdalina*, Lab.
- White Peppermint = *E. linearis*, Deuh.
- Blue Peppermint = *E. risdoni*, Hooker.
- Brown-gum = *E. muelleri*, T. B. Moore.
- Cider-gum = *E. gunnii*, Hooker.
- Urn-gum = *E. urnigera*, Hooker.

Blue-gum is, during at least its younger stages, one of the most rapidly-growing of forest trees. Though it takes a considerable time to produce wood of a very high technical quality, it will yield in 60 years an immense quantity of timber in proportion to the area, more especially if care is taken that the maximum number of only sound boles is allowed to grow.

Stringy-bark, though of less rapid growth, produces a timber of exceptional value, and its quality can be greatly improved by being grown in the closest canopy that its habit will permit. If this is not attended to it is disposed to produce large lateral branches to the detriment of the timber.

Our Peppermints run into one another very much, and it is sometimes difficult to determine to which a particular tree may belong. Black and White Peppermints have small fruits. The former has a dark, stringy bark; the latter, very narrow leaves, and a smooth, white bark, except at the base, where it is scaly.

Black Peppermint produces a strong fissile wood of great durability. It does best on low-lying places. White Peppermint is seldom a large tree, and is found upon poor hills. The wood is very durable. Fences built of it are generally sound after being in the ground 50 years. Blue Peppermint is most variable in form of leaf, from very broad and in opposite pairs to long, narrow, and alternate. There is always a blue bloom about them, from which it gets its name. The fruit is larger than those of the other forms. It appears only on the poorest of country, such as sandstone hills and sandy-bottom lands. In the latter places it is commonly known as Bastard Blue-gum.

Brown-gum produces one of our best timbers. This is of a brownish colour, splits well, and is very tough, rendering it suitable for axe-handles, shafts, &c. Unfortunately, it has a very restricted distribution, and prefers a zone on our mountains of about 2000 feet altitude. It will be a most useful tree to plant in its proper place.

Cider-gum is generally met with as a small tree in wet places at a high altitude, but where due protection is afforded it will attain great size. In the Uxbridge forest it attains a height of 200 feet, yielding a yellow, heavy, tough wood.

(To be continued.)

## DESTRUCTION OF FRUIT AND VEGETABLE PESTS.

By ALBERT H. BENSON, M.R.A.C., Director of Agriculture.

(Issued as a Bulletin by the Queensland Government.)

(Continued.)

### (2) *Insects Living by Suction.*

THESE insects, unlike those I have just dealt with, do not actually eat the leaves, bark, or other part of the tree or fruit, but live by sucking the juices or sap of the tree, plant, or fruit; hence a remedy which will destroy the former is of little value in the case of these insects. Poisonous sprays are of little value, as sucking insects do not eat the outside but live on the sap of the plant attacked, and so far it has not been found possible to poison the sap as a means of destroying them. We have, therefore, to find out some other means of fighting this class of insects, and this consists of either covering the insects with a mixture that kills them by touching them, such as kerosene and caustic mixtures, or by a mixture that smothers them by closing up their air-passages, such as resin mixtures, or by poisoning the insects by means of a poisonous gas which they breathe and die, such as fumigation with hydrocyanic acid gas, the most effectual and satisfactory method of destroying this class of insects. Many different kinds of insects live by suction, but by far the most injurious are those known as scales, so called on account of the scaly covering with which they are protected. When newly hatched, the young scale have no covering, but are minute insects, usually of a yellow colour, that are able to travel about their host plant in search of a suitable spot on which to feed. When such is found they insert their rostrum or sucking trunk into the sap and start to develop a protective scale, after which they are practically anchored for the rest of their existence. They continue to grow till they have reached maturity, when the female insect becomes either an enlarged egg sac, from which the young hatch out, or produces a large number of young live scale insects, and then dies. Many scale insects, such as the red scale, white scale, purple mussel scale, glover scale, and circular black scale of citrus trees; the San José scale of deciduous fruit trees, the mussel scale of the apple, and several species of parlatoria, diaspeæ, &c.—are comparatively inconspicuous, and frequently do serious damage before their presence is detected; so that it is always wise to be on the lookout for them, and to take steps to either exterminate them or keep them in check before they have become well established. These scale insects do not exude honeydew, consequently they are not accompanied by the sooty fungus or fumagine or by the different kinds of ants that live on the exudations of the other class of scales, to be presently dealt with. Although not so conspicuous as the scales which are accompanied by fumagine, they are as a rule much more deadly in their

effects, and if not kept in check will sooner or later kill the tree; some species, such as the red scale of citrus and the San José scale of deciduous fruit trees, being especially rapid in their action. The scales that exude honeydew, and which are accompanied by numerous ants feeding upon, and by fumagine growing upon, such exudation, are usually much more conspicuous than the scales that are not accompanied by fumagine; but, though much larger insects and very prolific, they seldom actually kill the tree, though they retard its growth, and the fumagine, by which they are accompanied, gives both the tree and fruit a very unsightly appearance. These scale insects are of many kinds, but belong mainly to the genus *Lecanium* and *Ceroplastes*. Many species have a wide range of host plants, as they do not confine their ravages to fruit and fruit trees, but are found on many native trees and plants, as well as on many introduced garden plants, hence it is practically impossible to exterminate them, but they can be kept in check and prevented from doing any serious damage to cultivated trees or plants by systematic treatment. In addition to scale insects proper there are a number of scale-like insects, such as mealy-bugs, that live by suction, also many species of aphids, thrips, mites, leaf-hoppers, plant-bugs, &c. Some of these insects are followed by fumagine and accompanied by numerous ants, but others have neither ants nor fumagine. Amongst the different species of aphids two or three are especially destructive, particularly the black aphid of the peach, the woolly aphid or American blight of the apple, the vine aphid or phylloxera of the grape-vine (which has fortunately not made its appearance in this State), as well as several species that are injurious to vegetables, especially to cabbages and plants of the same family.

*The Black Aphid of the Peach* attacks many kinds of peaches, nectarines, Japanese and European plums, and almonds. It is most injurious in the early spring, as it attacks the young growth as it appears, seriously checks it, and frequently injures the blossom to such an extent that it will not form fruit. Later in the season it does not, as a rule, do any serious damage, as it is usually kept in check by insectivorous lady-birds, but frequently a number of mature insects remain on the tree or on the roots of the tree near the surface of the ground during the winter and are ready to multiply their species rapidly as soon as growth starts in spring. Great care should be taken to kill any insect that is seen during the winter, and if this is followed up in the early spring by spraying with tobacco, nicotine, or resin washes, little damage will be done.

*The Woolly Aphid, or American Blight of the Apple.*—This insect attacks both the roots and the branches, hence the best remedy is first to work the trees on to non-blighting roots so that there is no disease below ground, and secondly, to keep the insect in check whenever it makes its appearance above ground. This is a pest which it is much easier to prevent than to cure, as once trees become badly infested there is practically no remedy other than heading back the tree and reworking it with a



non-blighting variety of apple. It can, however, be stamped out if fought in time, and there is no reason why many of our best varieties which are very liable to this disease should not be grown more extensively, if growers will only exercise the necessary care and take it in time. Woolly aphis, to be fought successfully, must be fought as soon as ever it makes its appearance. It will not do to procrastinate, as it spreads so rapidly that if its destruction is delayed it will soon be all over the orchard. Stamp it out as soon as the first speck is seen and you will have a clean orchard, but let it get a fair hold, and you will have to rework many of your best trees, and this entails a serious loss in time and money. Cyanide the tree as soon as it shows the slightest sign of the disease and you will wipe it right out; it is surer than spraying—you do not miss a single insect or an egg.

In the case of young orchards, where the trees are worked on blight-resisting stocks, I strongly recommend the use of cyanide for the reasons given, and even where the trees are older it is still the most satisfactory remedy. Where the roots of the trees are affected, however, or where very large trees have to be treated, then I would not recommend this method of treatment, but would advise spraying. The spraying, to be effectual, must be carried out thoroughly and be well followed up. Many spraying materials will kill the insects provided they get right on to their bodies, but to ensure this the spray must be applied with considerable force, as before the spray material can reach the body of the insect, it is necessary to knock away its protective woolly covering. This necessitates the use of powerful spray pumps—motor pumps are best—that are worked at a high pressure. The pump should be fitted with direct acting nozzles of the Bean, Seneca, or Nixon type, that will throw a direct spray with great force, so that it will not only reach every insect, but get into every crack and crevice of the tree. Spraying carried out in this manner and followed up will eradicate this scourge of the apple-grower.

Sucking, spinning, or burrowing mites, such as the Maori of the orange, the red spider of almonds, plums, apples, &c., and the pear mite, are easily kept in check by the use of sulphur, applied in the form of a fine powder, or by sulphides of potash, soda, or lime, applied as a spray.

Cyaniding—viz., treatment with hydrocyanic acid gas—is the best remedy for all sucking insects, as they breathe the poisonous gas and die, and the bulk of their eggs are killed as well; at the same time it is not the only remedy, as spraying, if thoroughly carried out with the right materials—viz., those that kill the insects by touching them or by smothering them—has proved itself to be an efficacious remedy. Kerosene and other oils, resin washes, caustic soda, caustic potash, sulphides of soda, potash, or lime, tobacco extract, &c., are all used to advantage. The manner of preparing the various sprays, as well as the particular insects they are most effectual in destroying, will be dealt with in detail later on.

(3) *Insects Boring into the Fruit.*

Some of our worst insect pests belong to this class, prominent amongst them being the codlin moth, fruit fly, and yellow peach moth. Their ravages are so serious that I think it advisable to deal with each of these three insects separately, and to go rather more into detail than I have done in the case of those insects I have already dealt with.

*The Codlin Moth.*—Special legislation has been enacted to deal with this pest in the Stanthorpe fruit district, and preventive measures are now being enforced there; hence it is essential that every grower of pomaceous fruits should know the life history and habits of this serious pest. The codlin moth attacks apples, pears, and quinces, and, to a small extent, stone fruits. During the late autumn and winter months in this State it hibernates in the larvæ or grub state; and the following spring it transforms in the pupæ or chrysalis stage; and from this state the fully developed insect or moth hatches out. The insects that pass the winter in a dormant larval state hide themselves wherever they can find a dry and safe retreat, such as in any hollow in the tree, cracks or crevices in the trunk or branches of the tree, due to broken limbs, bad pruning, or otherwise; under loose bark both in the trunks and branches—in fact anywhere on the tree where they can find a safe shelter. They will also hide in any props that may have been used to support the weight of fruit grown on the tree, in stakes that have been used to tie the tree to, in any cases, timber, or other material that may be left about under the trees; in fences adjacent to the tree; in cases that have held infested fruit; or in buildings that have been used as packing-sheds or that are adjacent to any infested trees. In brief, the insects will secrete themselves anywhere where they can find a suitable shelter. The first steps to be taken are, therefore, to make a careful search of all likely hiding-places, to remove all loose bark from the trees, to plug up all holes or crevices in the trees, to cut off all broken branches, to destroy by burning all loose bark that is scraped off, all broken limbs, all infested stakes, props, or other material likely to provide a shelter; to scald all cases that have held infested fruit and to carefully examine all packing-sheds, fences, &c. If this work is thoroughly carried out, a large number of insects will be destroyed, and there will be many less left to deal with in the spring. When the moths hatch out in spring they begin to lay their eggs on the apple, pear, and quince trees as soon as the trees are in blossom. It was formerly thought that the eggs were laid in the blossom, but it is now known that though a number are no doubt laid there, a number are also laid on the twigs and young leaves, and that the young caterpillars when they hatch out usually go to the flower and eat their way thence into the young fruit. The change from the larvæ to the pupæ state does not take place at any one time, but from our observations, extends over some weeks, whereas the change from the pupæ state to the moth is a comparatively rapid one. There is thus no general hatching out of moths at any one time, but rather a prolonged hatching out that extends over some weeks.

(To be continued.)

## SECOND EGG-LAYING COMPETITION.

### THE FINAL FIGURES.

THE following is the progress report for the eleventh and twelfth (final) months of the egg-laying competition conducted at the Springvale Tea Gardens, New Town:—

#### Eleventh Month.

	Month of April	Total to date.
1. Black Minorcas, C. W. Calver, Launceston ... ..	3	661
2. White Leghorns, O. H. Olson, Karoola ... ..	59	1251
3. Silver Wyandottes, W. T. Stephens, Beulah ... ..	81	1161
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	20	1049
5. White Wyandottes, A. G. Genders, Launceston ... ..	97	1096
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	60	1029
7. S.C. Brown Leghorns, East Launceston Poultry Yards, Launceston ... ..	40	1081
8. White Leghorns, W. J. Camp, Wynyard ... ..	3	664
9. White Leghorns, G. Boatwright, Smithton ... ..	4	900
10. White Leghorns, Whiteway Bros., King's Meadows ...	16	712
11. Old English Game, J. Thorne, Waratah ... ..	3	741
12. White Leghorns, C. W. Calver, Launceston ... ..	22	1138
13. R.C. Brown Leghorns, W. T. Stephens, Beulah ... ..	52	958
14. White Leghorns, C. R. Williams, Fingal ... ..	28	1074
15. Black Orpingtons, H. R. Taylor, Launceston ... ..	48	986
16. White Wyandottes, A. G. Genders, Launceston ... ..	57	1037
17. S.C. Brown Leghorns, F. Briggs & Son, Longford ...	23	976
18. White Leghorns, L. Dowling, Devonport ... ..	Withdrawn	
19. Silver Wyandottes, L. S. Hyland, Mt. Hicks ... ..	55	959
20. White Leghorns, O. H. Olson, Karoola ... ..	33	1095
21. Black Orpingtons, Mrs. S. F. Clarke, Hobart ... ..	47	836
22. Buff Orpingtons, H. G. Spicer, Stanley ... ..	51	833
23. White Orpingtons, W. H. Hale, Strahan ... ..	84	998
24. White Leghorns, B. H. Whittle, Launceston ... ..	56	1172
25. White Leghorns, F. A. W. Gisborne, Risdon-road ...	49	1015
26. White Leghorns, Rust Bros., Claremont ... ..	50	1073
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ...	67	1264
28. White Leghorns, A. Sheriff, Hobart ... ..	39	1073
29. White Leghorns, Mrs. Luke Williams, Moonah ... ..	9	1046
30. Buff Leghorns, C. G. Gilham, Launceston ... ..	Withdrawn	
31. White Leghorns, W. G. Skidmore (Penville), Launceston	12	841
32. R.C. Brown Leghorns, F. Briggs & Son, Longford ...	88	1105

#### Twelfth Month.

	Month of May.	Total.
1. Black Minorcas, C. W. Calver, Launceston ... ..	0	661
2. White Leghorns, O. H. Olson, Karoola ... ..	47	1298
3. Silver Wyandottes, W. T. Stephens, Beulah ... ..	52	1213
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	2	1051
5. White Wyandottes, A. G. Genders, Launceston ... ..	74	1170
6. White Leghorns, East Launceston Poultry Yards, Laun- ceston ... ..	28	1057
7. S.C. Brown Leghorns, East Launceston Poultry Yards, Launceston ... ..	0	1081

## SECOND EGG-LAYING COMPETITION. Twelfth Month - continued.

	Month of May.	Total.
8. White Leghorns, W. J. Camp, Wynyard ... ..	3	667
9. White Leghorns, G. Boatwright, Smithton ... ..	0	900
10. White Leghorns, Whiteway Bros., King's Meadows ..	2	714
11. Old English Game, J. Thorne, Waratah ... ..	0	741
12. White Leghorns, C. W. Calver, Launceston ... ..	2	1140
13. R.C. Brown Leghorns, W. T. Stephens, Beulah ... ..	3	961
14. White Leghorns, C. R. Williams, Fingal ... ..	14	1088
15. Black Orpingtons, H. R. Taylor, Launceston ... ..	10	996
16. White Wyandottes, A. G. Genders, Launceston ... ..	12	1049
17. S.C. Brown Leghorns, F. Briggs & Son, Longford ... ..	0	976
18. White Leghorns, L. Dowling, Devonport ... ..	0	614
19. Silver Wyandottes, L. S. Hyland, Mt. Hicks ... ..	31	990
20. White Leghorns, O. H. Olson, Karoola ... ..	6	1101
21. Black Orpingtons, Mrs. S. F. Clarke, Hobart ... ..	17	853
22. Buff Orpingtons, H. G. Spicer, Stanley ... ..	36	869
23. White Orpingtons, W. H. Hale, Strahan ... ..	78	1076
24. White Leghorns, B. H. Whittle, Launceston ... ..	43	1215
25. White Leghorns, F. A. W. Gisborne, Risdon-road ... ..	3	1018
26. White Leghorns, Rust Bros., Claremont ... ..	12	1085
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ... ..	54	1318
28. White Leghorns, A. Sheriff, Hobart ... ..	19	1092
29. White Leghorns, Mrs. Luke Williams, Moonah ... ..	0	1046
30. Buff Leghorns, C. G. Gilham, Launceston ... ..	0	614
31. White Leghorns, W. G. Skidmore (Penville), Launceston	2	843
32. R.C. Brown Leghorns, F. Briggs & Son, Longford ...	39	1144

## WEATHER AND CROPS.

CRESSY.—Heavy rain fell from the 8th to the 29th, the figures being—8th, 192 points; 9th, 140; 10th, 74; 13th, 1; 14th, 7; 19th, 39; 20th, 9; 27th, 62; 28th, 29; 29th, 19. The only fall to date for April was on the 6th, when 7 points were recorded. The weather lately has been wonderfully mild, and no frosts have yet appeared. There has been a fine growth of grass during the past two months, and feed is everywhere abundant. During the last month the threshing-machines were worked under difficulties. Several were bogged, and it took hours to move them a few yards. In some instances posts had to be used to corduroy the ground before the engine could be moved. Consequent upon the wet weather many stacks had to be pulled down, dried, and rebuilt. Threshing is just about completed in the district, several machines being already stored away. The yields, on the whole, have been disappointing, being much below the average. On the Saundridge estate from 200 acres the average was 50 bushels per acre. Many paddocks have been sown with Algerian oats, and some are looking well. In a few instances wheat-sowing has been commenced, but those who prefer to give the fallow longer—to allow the rubbish to grow—have not yet commenced operations. Of the farms previously to let around Cressy all have been taken up except one. As evidence of the mildness of the season, it may be stated that at time of writing (April 6) crops of marrows, pumpkins, and French beans are still making good growth, and fruiting as if the summer were still with us. Fruit trees, too, are yielding an abundant return. The agricultural show is engaging attention just now, and there should be a good display. One very old resident remarked the other day that he "had not seen such a season for 40 years."

## BOARDS OF AGRICULTURE.

The following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	G. Pratt	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Channel	W. Baldwin	Woodbridge
Cressy	James Anderson	Cressy
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
Elliott	L. H. Shepherd	Elliott
Fingal	F. M. Lattin	Fingal
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Geeveston	F. Hyndes	Geeveston
Glengarry	W. Wheldon	Glengarry
Glen Huon	P. H. Young	Glen Huon
Harford	Geo. Sykes	Harford
Irish Town	E. L. Smith	Irish Town
Kimberley	H. Britton	Kimberley
Kettering	F. Hawkes	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
King Island	A. Bertram	King Island
Leslie	R. C. Reid	Fern Tree
Lilydale	—	Lilydale
Lymington South	T. Burnaby	Lymington
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marrawah	E. Bonhöte	Marrawah
Montagu	R. Ennis	Montagu
Meander	H. Evans	Meander
Mt. Seymour	W. Wilson	Mt. Seymour
Mowbray	G. H. Boatwright	Smithton
Mooreville-road	J. M. Douglas	Burnie
New Ground	A. H. Douglas	Moriarty
New Norfolk	B. R. Reynolds	New Norfolk
North Motton	O. Waters	North Motton
Nook	M. McInnes	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgley	W. Morris	Ridgley
Scottsdale	F. F. Tucker	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
Sheffield	O. Ridley	Sheffield
South Preston	R. G. Allison	South Preston
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carins	Myrtle Bank
Sprent	A. Lee	Sprent
Staverton	T. Wootton	Staverton
Stoodley	J. Leo	Stoodley
South Springfield	M. J. Cox	South Springfield
Table Cape	H. J. Smith	Wynyard

## BOARDS OF AGRICULTURE continued.

BOARD.	HON. SECRETARY.	ADDRESS.
Tyenna	F. M. Smith	Tyenna
Ulverstone	H. A. Nichols	Ulverstone
Upper Mountain River	A. Griffiths	Grove
Wattle Grove	K. Lord	Wattle Grove (Lower)
Wilmot	D. E. Forbes	Wilmot
Yolla	D. T. Jones	Yolla

## Carnarvon, March 11 and April 15

March 11.

**PRESENT.**—Messrs. G. Eldridge (Deputy-Chairman), R. J. Stacey, J. A. McGinniss, H. Frerke, W. D. O'Neill, J. A. McArthur, W. R. McGinniss, D. B. Blackwood (Hon. Secretary), and one visitor.

**NEW MEMBER.**—Mr. H. Frerke, Jun.

**BEREAVEMENT.**—The Chairman referred to the loss of a member of the Board by death since the last meeting. On the motion of Mr. W. D. O'Neill it was decided that a letter of condolence be sent to the widow of the deceased member.

**EXPORT DEPOT.**—Mr. Stacey, who spoke at some length, contended that the Government should establish an export department to relieve the farmer of his produce at better prices. The Chairman also referred to this subject, which it was decided should be further discussed at a future meeting.

April 15.

**PRESENT.**—Messrs. Tanner (Chairman), G. Bellette, J. A. McGinniss, W. D. O'Neill, J. McArthur, G. Wellard, C. Trenham, H. Burden, and D. B. Blackwood (Hon. Secretary).

**DAIRY ACT.**—The Chairman referred to the Government notice appearing in the "Mercury" of 8th April re the new "Dairy Act." It was resolved that the Secretary write to the Director of Agriculture, and inquire whether dairies registered under municipal by-laws, for which a fee of 2s. 6d. is paid, require to be registered with the Agricultural Department.

**POTATO DISEASES.**—The Chairman read a paper on "Potato Diseases," quoting from the leading experts of the colonies and New Zealand, and also drawing upon his own experiences in Africa and England.

## Clarence, May 6.

**PRESENT.**—Hon. Jas. Murdoch, M.L.C. (President), Messrs. T. A. Tabart, H. Joliffe, W. Young, T. Dawson, G. Salmon, E. W. Goodwin, Jas. O'May, Jno. Cotton, C. F. Percy, A. O. Green, E. P. Davies, Rupert Young, J. O. Chipman, W. Westbrook, M. Blyth, L. Giblin, and R. A. Black (Hon. Secretary).

**CORRESPONDENCE.**—Circular letters were received from the Municipal Council of Leven and Director of Agriculture having reference to the holding of a conference on 10th and 11th May and 14th June respectively. It was pointed out that no satisfactory arrangements had been made as to railway fares for delegates from the South to the Ulverstone conference. A resolution was passed authorising any member of the Board who chose to attend to act as delegate from this Board, and the President (Hon. James Murdoch) was deputed to represent the Board at the Launceston conference.

**AGRICULTURAL FARM AND SCHOOL.**—The proposal of the Director of Agriculture (Mr. Benson) as to establishing a State farm and school was discussed. The President said that as copies of the pamphlet issued by the Director of Agriculture explaining his scheme had been sent to each member, and it had also been published in the "Mercury," it would be taken as read. The scheme of the Director seemed to him to be a good one. Mr. Benson esti-

mated the capital required on the basis of £8 to £10 an acre, which was what a landlord in England expected a tenant farmer to have as capital to start on a farm, and considered that the farm should be not less than 500 acres, worked on sound business lines, and on up-to-date methods. That capital would be exclusive of the cost of buildings. [Mr. Jno. Cotton: And would not include the purchase of the land.] The President said he would be glad to see an institution of the sort started, not that he thought there was money to be made out of the institution. The Director seemed to think that sufficient money could be made out of it to pay interest on the capital of £5000 required, no mention being made of paying interest on the capital cost of the land. He supposed that would come out of the general revenue of the State. It would be worked cheaper, and for Tasmanian conditions it would suit better than an agricultural college, such as they had in different parts of the mainland. He thought that such a farm was very desirable for young men to learn the science of farming and useful theoretical knowledge, before embarking on practical farming. Such opportunities were calculated to give them a better start. Farmers were being told by experts that a lot more could be got out of a farm by up-to-date methods, and he would like to see those gentlemen tackle the job and prove their assertions by demonstrations. Of course, experimental work was very desirable on such a farm, and was calculated to be of immense advantage to the farming community generally. It would be an advantage if experiments were made in many directions at such an institution in Tasmania; but experimental work was not directly profitable. Mr. Benson said he wanted the soil on such a farm to be not above the average—not best land. Even if experimental work was not directly profitable work in the carrying out, farmers would thereby get to know many things. If there were ten or a dozen young men working on this State farm and school, getting no wages, and probably paying for their board, instead of so many labourers, that should be a sufficient set-off against the unprofitableness of experimental work. It was stated in the scheme that it was intended to do some experimental work. The Government perpetually assisted the mining industry with subsidies, and so on, but were not spending much in aiding the agricultural and pastoral industry. Some money was spent in that direction, but nothing like so much as in relation to mining, yet the products of the land were returning to the State about three millions worth in the year at present. The actual exports from land products represented £1,750,000 a year, and in addition it was estimated that about a million and a quarter of products off the land were consumed in the State. Altogether the produce of the land represented in this State about £3,000,000 per annum, which was far more than the mining returned—it was one-third more. In other industries 50 to 75 per cent. of the money made went in payment of wages, but in agricultural pursuits more than that. Often the whole 100 per cent. went in that way. The farmer had more to contend with, and paid more wages in proportion to his returns, than any other industry he knew of. So, if better or improved methods could be demonstrated on a State farm with the aid of experts, it would be a great advantage to the farmers and the State as a whole. Farmers would visit the State farm under such conditions in a stream, making observations and gaining useful knowledge. He hoped something would come out of the Director's proposal. Then, there would be provided a place for young men to go to, and have the foundation of agricultural work laid. Very frequently applications were made to farmers and orchardists to take in pupils, and they found it inconvenient to do so. It was a pity that such young men in Tasmania should be denied the opportunities to learn farming, and thereby settle on the land. Mr. Giblin said he agreed with most of what the President had said. But he did not approve of the Director's scheme, inasmuch as he only proposed to show how such a farm would pay interest on the capital sum. Something more than that was needed to show that the system of farming put forth

would pay. Farmers would expect such an institution to show how they were to make a satisfactory profit out of the business. As the Director had put it, he seemed to indicate a lack of faith in his own experts. It was true that there was no profit to be made out of carrying on experimental work, but Mr. Benson indicated that that work was to be quite small. Taking the Director's scheme as it stood on paper, he indicated that agricultural experts could not work a farm at a commercial profit. He (Mr. Giblin) thought it would be preferable for the Department to lay out the money proposed to be spent in experimental work, ascertaining the most suitable manures for certain crops on certain soils, the growing of fodder crops, new methods of cultivation, treatment of pests, and so on. Experiments to such ends were much needed, especially in the midlands. If a State farm and school were established it should demonstrate how to best make a farm pay, and the farm should be made to pay, especially with working students helping so much on the land. Mr. John Cotton moved, "That this Board does not entertain the scheme." He said, according to Mr. Benson's figures such a scheme was going altogether to involve an expenditure of £13,000. That was including land and buildings. That sum at 4½ per cent. meant £630 a year. Then a competent working foreman would not be procured under £250 a year, and four farm labourers would cost, roundly, £100 each; a sum for contingencies could not be put down at less than £200 a year. In round figures it would cost £1500 a year to run such a farm without any profit at all—according to the estimate of the Director. Wherever Governments had run such farms they had been unremunerative. He heard of it costing on one Government farm 2s. 6d. each to grow cabbages worth 1d. each! In his opinion young men got no more real knowledge of farming at such institutions than was got out of an educated parrot. The motion was not seconded. Mr. Westbrook began to talk of the Government employing a bushman to direct the clearing of land and grassing it, and putting young men on it to start dairy farming, but was ruled out of order. Mr. Joliffe thought such an institution was much needed in Tasmania to give young men a chance to learn scientific as well as practical farming and modern methods. All the other States provided such institutions. Mr. A. O. Green thought Mr. Cotton and Mr. Giblin had not regarded the scheme fairly. Mr. Benson advocated the establishment of a working farm, rather than a college, with its book-learning. It would be a place where young men could acquire a scientific and practical education in up-to-date agricultural and horticultural methods, and that was sadly needed in Tasmania. There was now no place of the sort in the State. At present a young man would have to go a day's journey in Tasmania to see some up-to-date farming. A great many farmers and orchardists never, or seldom ever, did any liming of the land, no draining, and adopted no proper system of rotation of crops. There was the same hard pan left under the plough season after season, and the land was carrying charlock and all manner of weeds. In many districts such was the only farming the young men on the farms saw, for they did not go much over the State. Such had no opportunities of observing what good modern farming was like. There had been from time to time considerable agitation for such a State farm and school as the Director advocated. Young men, with the advantage of a better foundation being laid, would have an infinitely better chance in starting farming for themselves. Mr. J. O. Chipman said he took the Director to mean that being a State school, as well as a farm with experiments conducted, it was intended more as an educational than a profit-making institution. No doubt science and sound theory were an enormous aid to a young man who had acquired the same, combined with the practical. He thought the Director's scheme was a step in the right direction. [Mr. Giblin: But this is a scheme for scientific and practical farming to be done at a loss. Do we want that? Do we not want rather to have demonstrated to us by experiments—and to students too—how we can better do things,



how by different methods different and better results would be obtained in relation to several farming operations, the growing of crops, and feeding of stock?] Mr. Davies said he thought that, as a scheme for teaching pupils, Mr. Benson's was about the best that could be devised for Tasmania; but as to experiments, he thought it would not prove generally useful, beyond the district in which the farm was situated. As to Mr. Cotton's sneer at agricultural students learning nothing but science and theory at such institutions, there was no industry that had benefited more by theory and science than agriculture. There were young men in Tasmania to-day who were very successfully farming and carrying on pastoral pursuits who declared that they had derived incalculable benefit from having been students at Hawkesbury Agricultural College. The difficulty he could foresee in relation to conducting experiments on such a State farm was that the climatic and soil conditions varied so greatly in Tasmania; as also did the branches of farming pursued. That being so, experimental work and demonstration thereby in one part of Tasmania would not be of much service to another. For instance, experiments and demonstrations on a farm in the south in relation to the north-west, or *vice versa*, or on a farm in the midlands in relation to either parts of the north or the south, would not be of the same character. He therefore had always advocated the Department conducting field experiments on farms in different parts of the State to suit local conditions. Such work could be easily carried on by arrangement with local farmers, and the results of the experiments would prove of immense advantage in overcoming many existing difficulties. Young men who wanted a college training (which was a very valuable thing) could go to Hawkesbury College just as well as attending the State school proposed, and the training there would be more thorough than at any State farm school. Mr. Green moved, "That in the opinion of this Board the establishment of a Government agricultural farm and school is preferable to an agricultural college." The President seconded this. He did not think the outlay involved was going to prove a pecuniary loss to the Treasury of any great annual amount. It would be an immense boon to young men who desired to learn scientific farming and modern methods without having to go out of the State. He agreed with Mr. Cotton and Mr. Giblin that the Director should make his scheme a fair business proposition. Such a State farm would not be burdened with rates and taxes, and the work of the students on the farm should greatly reduce the labour bill and the expense of conducting field experiments. With such a farm they would see whether the Director and his staff could show them how to do better than the generality of farmers were doing. Mr. Cotton said he would prefer a State farm to an agricultural college. Mr. Giblin said his only desire was to see something useful accomplished, showing that it paid better to adopt other methods, grow other crops, and how to combat certain pests and difficulties, and how to grow certain crops on different soils to better advantage. To that end he thought field experiments in different districts would prove most serviceable. Mr. Green's motion was unanimously agreed to. Mr. Giblin moved, "That the proposed farm should be an experimental one rather than a general one on business lines." The motion was supported by two or three members, but on being put to the vote was lost by a small majority.

**BRANDING STOCK AND FLAYING HIDES.**—Mr. T. A. Tabart gave notice to move three resolutions at the next meeting, viz.:—(1) The consideration of the adoption of a substance in substitution for tar and pitch for branding butchers' sheep purchased at the various sales, so that the depreciation in the value of the skin can be avoided. (2) The loss occurring to the owners of stock slaughtered at public slaughterhouses from the indifferent flaying of hides and sheepskins, with a proposal for the remedy. (3) To consider the serious loss to the sellers in money value per hide taken from cattle that have been badly fire-branded upon portions of the hide that have the highest market value for tanning purposes, and to suggest a remedy to overcome

such loss. It has been estimated that the losses from these causes amount to thousands of pounds a year in Tasmania.

**BUSH FIRE BRIGADES.**—It was resolved that the circular forwarded by the Director having reference to bush fires and bush fire brigades was not applicable to this district.

**NEW MEMBERS.**—Messrs. Jas. Young, Jas. Pearsall, Frank Luckman, and C. B. Brown.

### Frankford, April 22.

**POULTRY.**—As it was inconvenient for Mr. Terry to lecture on pigs and poultry during his last visit to Frankford, it was decided that he be asked to revisit the district at the earliest possible date to give his promised lecture.

**THE GAZETTE.**—Members were of opinion that the articles written by the different experts should appear in the "Gazette" at the time they would be of service to readers of that journal—*i.e.*, articles giving advice for December should not appear in the January issue.

**QUERIES.**—The Secretary was instructed to ask the Department to furnish replies to the following questions: (1) *Re* rabbit poison. Has the hot sun any influence in lessening the killing value of phosphorised oats? The object of the question is to ascertain whether it is better to lay the oats in the evening or whilst the sun is shining. [The question of the best time to sow phosphorised oats depends upon the season of the year when it is laid down. If in the summer, the work had better be performed towards evening; but at this period of the year it can be done any time during the day. The object should be to lay the poison over the feeding-grounds, which are best indicated by the grass being eaten. Unless this can be done there is a danger that the greater part of the poison will not be taken. CHIEF INSPECTOR.] (2) What is the best description of vehicle to use for carrying, say, from 40 to 60 bushels of apples over a distance of 20 miles in hilly country? [The best vehicle to use for the purpose named is an American wagon. Of this vehicle Mr. W. H. Calvert (Ranelagh) says: "I find it is light running. You can use light horses, and so trot both ways. The fruit is carried better than on heavier lorries. My wagon is made to carry 50 cases, but of course we often add a few more. It is 8 feet 4 inches long and 3 feet 10 inches wide, and two ordinary hack horses will take the load."—ED.]

**STATE FARMS.**—The Chairman (Mr. C. I. Knight) read the following paper on this subject:—"For many years past a section of the most up-to-date farmers and fruitgrowers have lost no opportunity of bringing before the Government the necessity for the establishment of a State farm, where all the experts could have their headquarters, and where students could be taken in to receive a scientific education in all branches of agriculture and stock-raising. In no case has the Minister failed to approve of such a scheme. On the contrary, he has always pointed out that it is in accord with his most cherished ideas of carrying on the Department of which he is the head; but there has always been the question of cost and situation—two most important matters, and two that seem almost impossible to overcome at present, or for some time to come. Such being the case, is there any other means by which the results aimed at could be obtained—and that at a cost within the means of the Department—and at the same time one that would benefit the whole community? I think there is, and, if you will allow me to do so, I will try and put before you my ideas on the subject—ideas which I have held for a long time, and which I have upon several occasions brought forward in the past. The State, although a small one, has very many different classes of cultivation and production in its various centres, and I take it that the object to be gained is the most information at the least cost and least inconvenience to the student and farmer. To do this in one or two centres means a very large outlay indeed, and would even then be only a partial success, as it

would be impossible to obtain an area suitable for all classes of production. To overcome these difficulties, let the Minister of Agriculture invite persons who are situated in suitable centres to devote a small area to the public use. Let them still retain possession of the land, and take all the produce grown from it, but allow the Department the first right at the current market rates. In return for this right they should be required to do all the labour that is not done by the students or the experts. All seed, manure, and everything else to be provided by the Department, and laid out under the strict control and supervision of the various experts of the State; such experts to make regular visits to each centre, and give public lectures on what is going on, and the students to be put under the control of the owner of the land to carry out such work as may be from time to time directed by the experts to be done. I fully believe that there are very many capable, up-to-date farmers scattered all over the State who would willingly devote a small area to such an object, both for the advantage they would derive from the work done, and also from a desire to help the rising generation to train and develop a better and more advanced system of agriculture generally. This scheme would enable the Government to select various areas in different parts of the State; say three agricultural areas in the midlands, south, and north, two especially devoted to fruit and tree culture in all its branches, and two to dairying, poultry, pigs, &c. With these seven centres of instruction a student should have no difficulty in obtaining a practical knowledge of the best work and how to carry it out in a strictly commercial manner, and the outside farming community would be very greatly benefited by being able to attend the lectures and also to see for themselves the results of experiments in various crops under conditions practically similar to those ruling on their own land—a thing that cannot be done when only one place is used for carrying out all the various branches of agriculture, &c. Of course, I know that there are many persons who doubtless think that it is not worth the Government's while to undertake anything unless done upon their own ground, and strictly under the rules of "red tape." But what is wanted is to bring modern ways before the eyes of all the producers, so that they may make the best use of ordinary every-day conditions, and not to train up a few diploma men, who as a rule are not a success when they commence to make their own living out of the soil in its ordinary condition, but are something like a French chef, suddenly told to run a sixpenny restaurant and make it pay! In summing up the advantages of this plan, I would point out, firstly, that by its adoption instruction would be brought to the people who want it most, and at a minimum cost; secondly, the experts would be brought into the various centres at known and suitable times, and would be able to aid all the local farmers by advice at the time it was most wanted; thirdly, the State would be cut up into the most suitable areas for the different products intended to be grown; fourthly, each centre would be the headquarters of the Boards of Agriculture in which it was situated; and, lastly, the best and latest information would be given to the man upon the land at the smallest cost to the general taxpayer." Mr. Knight was accorded a hearty vote of thanks for his paper, which was well received.

**Mowbray, April 19.**

**PRESENT.**—Messrs. S. Moore (Chairman), W. Howard, J. G. Norton, A. Butterworth, Chas. E. Poke, Wm. Fixter, A. H. Heathorn, E. C. Lovett, C. E. Groom, L. W. Brooks, H. Smith, J. E. Lee, and G. H. Boatwright (Hon. Secretary).

**RAIN-GAUGE.**—A letter was read from Mr. Hunt, Commonwealth Meteorologist, stating that he could not supply a rain-gauge, as he considered there were enough in the district to serve the purpose for which they were established.

**GRASS.**—Correspondence was read from Mr. R. A. Black, of the Agricultural Department, in reply to an inquiry by Mr. Butterworth, *re* tall fescue and the tendency of same to procure abortion in cows; also asking for samples of grass for testing, to ascertain if same is infected with ergot. The following questions were asked:—(1) Does the ergot exist in any other part of the grass except the seed? (2) Would the grass cause the same effect if not allowed to seed? [The spores fall on the flower, and commence to grow, so that unless the seed stage is reached no ergot forms.—Ed.]

**LAND SETTLEMENT.**—On the proposal of Mr. Heathorn it was decided that the Lands Department be asked to report on land in this district (originally held under timber leases by Messrs. J. S. Lee & Sons) for the purpose of ascertaining if it is suitable or otherwise for agriculture, grazing, or fruit-growing.

**FRUIT EXPERT.**—It was decided that the Fruit Expert be asked to give a demonstration within the Mowbray area, the demonstration if possible to extend over two or three days, so that the practical side can be placed before the orchardist in his own orchard.

**BACON FACTORY.**—The question of establishing a bacon factory in the district, introduced by Mr. Fixter, was allowed to stand over till next meeting.

**PAPER.**—The following paper on "Land Settlement, and Why it is a Partial Failure," was read by Mr. Heathorn:—"In dealing with the subject before us to-night I will endeavour to express a few of my own thoughts and experiences with regard to it. Firstly, I think it wise not to try and dictate, as it were, to the Government how to run the Lands Department, but to ascertain if possible by discussion some means whereby land selection can be followed up with land settlement within a reasonable time—say three years. At the present time settlement is far ahead of road or rail facilities, and this is one of the greatest drawbacks to further settlement. One may go into any of the outlying new districts and find on an average one family to every 1000 acres, striving to make a living, whilst all the surrounding land, though selected, has no one living on it. When one applies to the Government of the day for more money for increased facilities, it is stated that there is no money in the Treasury. Why? Because the Government is trying to meet the interest on the cost of construction of public works by taxing gum-trees and wallabies! We may go into any part of Tasmania to search for the pioneer settler—the man who wanted land, and was prepared to put up with almost any hardship to make a home for his family. Where is he? Gone—sold out or given it up—disheartened. Those who have stuck to it and gone through the early struggles have become old men before being able to enjoy the comforts of life, instead of being able to do so when in the full vigour of their manhood. Now, to fight against all odds with perhaps little or no capital to start with, is, it seems to me, too much to ask of any man. Moreover, it is of no advantage to the Government. Instead of each selector being a producer, and thereby a taxpayer, under present conditions he is merely a dummer—living on the land, and yet forced to go off the greater part of the year to earn sufficient to meet his instalments and pay for his living expenses. During last year there were about 170,000 acres of land selected in Tasmania. Under present conditions I am prepared to say that not one selection in ten during the next five years will be occupied and in a state of production. What benefit is the sale of that land to Tasmania? Practically none. We have parted with a portion of our national estate, and increased our public works expenditure, for which we do not get a just equivalent in the shape of more selectors, more taxpayers, and increased production. But this is not the only evil. Some few years ago we had a large influx of settlers from the other States, who selected land, killed thousands of pounds' worth of valuable timber, and, after doing all the damage they could, returned sorrier and wiser men. Now, I do not

think it was altogether the land laws that disheartened them; it was the fact that they brought with them a disease which seems to be somewhat prevalent there; that is, the 'weary willie' or tired disease. They preferred to loaf about the town and kick a football rather than strive to make a home on the land. No doubt if you met one of those individuals on the other side, he would have a different story to relate. He would possibly tell you it was useless going into dairying, as there were no dairy cattle here owing to the quarantine regulations, but would forget to tell you that he never attended any of the leading shows, or that he took only five shares in the Smithton butter factory—and forgot to pay for them! Of course, it is very easy to criticise, but no so easy to suggest a remedy, and a very different matter altogether to carry one into effect. But by persistent effort and combining together I think we should be able to evolve some scheme to fill up the vacant land in our district. My idea is, firstly, limit selection to 100 acres; secondly, to extend the time for payment to 30 years; thirdly, to liberalise the 'Advances to Settlers Act,' so that even if a settler had no money he could go on to the land and improve straight away. Thus I would advance him (provided he resided on the land) money from the Agricultural Bank on progress payments, the same as the Public Works Department does now. I would make the position of land-valuator permanent. In doing this the State would not stand to lose anything, as the selector does not own the land until he pays every farthing to the Government. I maintain that by placing men on the land we add to the assets of the State. Under the present system we part with a portion of those assets for which there is no certainty of getting a taxpayer in return. In most cases he is in one of the other States or in business, or at anything else but on the land. The great drawback to land settlement, and to Tasmania generally, is the want of efficient labour. To overcome this, I advise a vigorous policy of immigration. The cry in the Old Country is, 'What are we going to do with our boys and girls?' And the cry out here is, 'What shall we do when the Chinese or Japanese come?' And come they will if we do not fill up our waste places. At the present time the settlers have to pay interest on a portion of our national works, that is, in regard to expenditure for road-construction, from the Waste Lands Fund. Now, is it a fair proposition to ask the settler—because the Government can force him to pay—to do this? What would the property-holders of Hobart say if the Government asked them to pay interest on the cost of construction of the Strickland-avenue?" A hearty vote of thanks was accorded Mr. Heathorn for the able manner in which he had handled his subject. General discussion then ensued on the various points brought forward by Mr. Heathorn, and it was resolved that the subject be further discussed at next meeting.

**REGISTRATION OF DAIRIES.**—The Secretary drew the attention of members to the fact that all dairies must now be registered.

### Queenborough, April 24.

**PRESENT.**—Messrs. L. Rodway (Chairman), T. Williamson, T. Trowbridge, W. H. Connor (Hon. Secretary), and one visitor (Mr. J. Osborne). The meagre attendance was due to the very inclement state of the weather.

**NEW MEMBER.**—Mr. F. T. Ward.

**PAPER.**—The Secretary laid upon the table a copy of "The Dairyman," received from New Zealand.

**BITTER PIT.**—Mr. John Osborne, Jun., Horticultural Expert, gave a very interesting lecture on the above subject, relating his experiences in connection with it in the different parts of the State, which went to show that, with careful treatment and pruning, this disease can be greatly lessened, if not altogether overcome.

**Stoodley, April 11.**

**PRESENT.**—**MESSRS.** W. Bannon (Chairman), W. Scanlon, Sen., T. Tyler, A. Tucker, J. Wright, L. Arthur, W. Scanlon, Jun., J. Powlett, G. Nolan, and J. Leo (Hon. Secretary).

**ELECTION OF SECRETARY.**—Mr. J. Leo was unanimously re-elected Hon. Secretary.

**SUBSCRIPTION.**—On the motion of Mr. Bannon it was resolved that members pay 1s. annually to cover expenses.

**STATE AGRICULTURAL FARM.**—The first matter considered by members was the proposed State agricultural farm. Provided that the site chosen was somewhere along the North-West Coast, and that the farm was self-supporting, the Board favoured the proposal. As a training ground for youths, as an experimental farm, and as an object-lesson, such a farm conducted on up-to-date principles was thought to be capable of a vast amount of good.

**STRAWBERRY CLOVER SEED.**—On the motion of Mr. Scanlon, Sen., it was decided that application be made to the Department of Agriculture for a parcel of strawberry clover seed for experimental purposes.

**ARTIFICIAL MANURES.**—It was decided, on the proposal of Mr. T. Tyler, to bring under the notice of the Minister for Lands the need for a more thorough supervision of the sale of artificial manures.

**RAILWAY FREIGHTS.**—The question of anomalous railway freights and the injustice suffered by small landowners in connection therewith was also discussed.

**St. Patrick's River and Myrtle Bank, February 3 to March 28.**

Several well attended meetings of the Board have been held between these dates dealing with the local home milking competition and annual produce show, a detailed account of which would not be of general interest.

**HOME MILKING COMPETITION.**—The testing in connection with this competition was carried out at the Myrtle Bank public hall, and was well attended. The ladies of the district were invited to be present, and as the results were written on the blackboard the chances of the several competitors were freely discussed, the calculations being afterward completed by Messrs. Carins and R. Skemp. The honours went to cows belonging to Messrs. Alf. Dean, F. Harrison, and Claude Faulkner, which stood in the order named, with several others close up. A few hours were thus spent in a novel combination of business and amusement. At the conclusion the workers were agreeably surprised to find tea and cake handed round, and some thought the innovation would not be unwelcome at other Board meetings.

**AUTUMN SHOW.**—An invitation to be present at the annual autumn show was accepted by His Excellency the Governor (Sir Harry Barron), who takes a deep interest in the more recently settled districts, and attended with the purpose of encouraging the residents in their uphill fight in the wild bush. The show was in every respect the most successful yet held, and the Board and residents of the district generally feel themselves under a great obligation to His Excellency for his patronage and encouragement. In a letter to Mr. R. J. McKenzie, M.H.A., the Governor expressed himself as highly pleased with his day's outing. Messrs. Carins and R. Skemp acted as joint secretaries, and were loyally helped by the members of the Board and others.

**March 28.**

**AUTUMN SHOW.**—There was a very full attendance of members, and during the evening the prize-money in connection with the late show was paid over. The labours of Mr. Freiboth, who superintended the catering for the general public, and of Mrs. Richards, who supplied luncheon for the Governor and guests, were specially mentioned.

## Upper Mountain River, May 6.

**PRESENT.**—Messrs. G. S. Parsons (Chairman), A. Griffiths, A. Schmidt, C. Schmidt, L. Schmidt, A. C. Oates, G. Oates, Jas. Stevenson, and A. J. Stevenson.

**CORRESPONDENCE.**—Communications were read from the Director of Agriculture *re* Irish blight and “stinkwood fever,” but in regard to both matters members felt that the letters would have had more value had details of remedies been supplied.

**RUST ON APPLES.**—A general discussion took place on this subject. Some members thought that the so-called “rust” might be possibly caused by some deficiency in the soil, such as lime, as it had been noticed that apples grown on a sandstone soil were not so much affected as fruit produced on alluvial soil. Further discussion was deferred until next meeting.

**MANURING OF ORCHARDS.**—After discussion members arrived at the conclusion that no fixed rules for orchard-manuring could be laid down, as the variations of soil, situation, and climate had such a bearing on artificial manuring that one method could not be applied to all orchards. It was generally conceded that, although blood and bone manure had proved successful in some instances, brain manure was the best paying manure that could be used on the farm.

## NORTH-WESTERN FRUITGROWERS' ASSOCIATION.

A meeting of the executive committee of the North-West Tasmanian Fruit-growers' Association was held at the office of Mr. Chas. Wallis on March 17, when the following matters were discussed:—

**FREIGHTS.**—From information obtained by the Secretary, it appeared that there was no immediate prospect of obtaining any concessions in regard to freights from this end to the ports of shipment, the fixed charge being 5d. per bushel case. The freight charges from Hobart to England were reported by him as being 2s. 6d. or 2s. 10½d. per bushel case; shipping charge, 2d. per case; cartage, 1s. per 50 cases; insurance, 1d. per case; dock dues, 7d. per case; and commission on sale, 5 per cent. per case. Mr. C. Sheedy, of Spreyton, emphasised the necessity existing for careful inspection of orchards by the inspectors appointed by the Municipal Councils of Devonport and Latrobe under “The Codlin Moth Acts,” and it was resolved that the respective Wardens should be interviewed thereon.

**ORCHARD ACCESSORIES.**—An offer by Messrs. Sadleir and Knight, of Launceston, to supply the Association with all orchard accessories at bedrock prices was considered at length. Mr. A. G. B. Keene, of Devonport, considered that a considerable outlay would be involved should the Association desire to keep a suitable stock of such accessories in hand, and that it would be well to place the matter before some local firm with a view to their taking up the line. The President (Mr. C. A. Stackhouse) thought it a matter for the general meeting, at which time should also be considered the advisability of placing a local order by tender for a sufficient quantity of cases to meet the probable requirements of the Association. It was accordingly decided to leave the matter over until the general meeting in August next.

**ASSESSMENTS.**—The Government assessments upon orchard lands were discussed, and it was unanimously resolved that where members desired to appeal the Secretary for the Association should appear on their behalf if so desired.

## METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING APRIL, 1911 AND 1910.

Station.	1911.	Wet Days.	1910.	Average.
<b>NORTHERN.</b>				
Marawah .....	387	16	326	420
Cape Grim .....	286	17	278	310
Sunny Hills .....	—	—	364	—
Irish Town .....	501	24	324	—
Black River .....	—	—	195	334
Stanley .....	296	20	167	268
Flowerdale .....	—	—	276	—
Flowerdale, Upper .....	397	17	292	450
Yolla .....	496	22	315	504
Wynyard .....	289	18	267	—
Burnie .....	304	15	242	318
Ridgley .....	325	17	269	—
Ulverstone .....	260	10	248	308
Kindred .....	224	13	292	—
Devonport .....	278	13	222	299
Latrobe .....	—	—	215	277
Northdown .....	—	—	206	247
Beaconsfield .....	285	11	170	—
Low Head .....	196	17	168	214
Black Bluff .....	774	17	516	—
Moina .....	607	21	—	—
Gunn's Plains .....	—	—	301	387
Central Castra .....	359	17	268	364
Wilnot .....	363	14	—	—
Gawler .....	—	—	258	310
Sheffield .....	192	8	256	—
Deloraine .....	195	6	372	259
Caveside .....	276	10	242	263
Cressy .....	132	7	187	151
Longford .....	130	9	254	194
Westbury .....	183	8	245	—
Carrick .....	132	8	236	—
Launceston .....	231	12	197	200
Glengarry .....	279	9	258	277
Frankford .....	*303	—	310	339
Exeter .....	310	9	196	—
Lilydale .....	361	10	194	325
St. Patrick's River .....	509	12	—	—
Springfield .....	446	13	255	355
Springfield South .....	—	—	276	—
Scottsdale .....	363	12	191	355
Branxholm .....	391	11	193	—
Ringarooma .....	386	11	261	374
<b>WEST COAST MOUNTAIN REGION.</b>				
Waratah .....	979	22	711	672
Que .....	859	24	—	—
Tullah .....	850	20	478	—
Renison Bell .....	1023	22	—	—
Mt. Read .....	1476	26	1102	1037
Dundas .....	1163	22	—	—
Zeehan .....	1166	23	1100	923
Mt. Lyell .....	1299	22	1052	1092

\* Telegraphic reports only.



## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Queenstown ... ..	1177	23	832	—
Strahan ... ..	920	—	—	494
Cape Sorell ... ..	577	23	432	486
Pillinger ... ..	852	23	74	—
<b>CENTRAL PLATEAU.</b>				
Great Lake ... ..	—	—	349	253
Roscarboro ... ..	316	13	—	—
Bronte ... ..	419	17	—	—
Steppes ... ..	252	11	—	—
Woods' Quoin ... ..	190	14	—	—
Interlaken ... ..	—	—	238	299
Dog's Head ... ..	—	—	—	306
<b>DERWENT VALLEY.</b>				
Glenmark ... ..	—	—	393	—
Bashan ... ..	—	—	243	323
Osterley ... ..	354	9	—	—
Bothwell ... ..	125	14	226	208
Cleveland ... ..	373	8	—	—
Hamilton ... ..	225	16	181	150
Ellendale ... ..	537	16	269	342
Glenora ... ..	238	13	151	166
Belmont ... ..	—	—	124	170
Clarendon ... ..	168	9	130	189
New Norfolk ... ..	205	11	159	176
Uxbridge ... ..	389	12	258	346
Lachlan ... ..	—	—	220	281
<b>SOUTH-EASTERN.</b>				
Ramsgate ... ..	—	—	—	—
South Bruni ... ..	346	12	290	323
Adventure Bay ... ..	466	14	—	—
Southport ... ..	*445	—	362	383
Lunawanna ... ..	210	18	394	—
Port Esperance ... ..	299	10	348	348
Port Cygnet ... ..	—	—	355	—
Petchey's Bay ... ..	296	14	258	—
Middleton, Channel ... ..	337	16	282	—
Kettering ... ..	428	17	238	—
Franklin ... ..	431	12	—	227
Kingston ... ..	269	11	—	—
Mt. Nelson ... ..	210	11	249	210
Mt. Wellington (Gap) ... ..	485	19	254	442
The Springs ... ..	565	19	350	595
Hobart Observatory ... ..	250	15	201	181
Hobart Botanical Gardens ... ..	233	11	158	169
Hobart Waterworks ... ..	287	14	258	317
Glenorchy ... ..	331	11	183	236
New Town ... ..	—	—	217	—
Bellerive ... ..	200	14	195	205
Rokeby ... ..	*170	—	151	190
Sandford ... ..	184	10	235	241
Premaydena ... ..	224	11	326	290
Carnarvon ... ..	409	15	346	355
Sorell ... ..	152	12	240	216
Cambridge ... ..	—	—	209	195
Craigow ... ..	—	—	165	—
Richmond ... ..	166	10	182	172

\*Telegraphic reports only.

## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Brighton ... ..	175	9	185	179
Tea Tree ... ..	132	7	181	—
Bagdad ... ..	183	9	185	215
Broadmarsh ... ..	—	—	24	—
Kempton ... ..	150	—	206	180
MIDLAND.				
Spring Hill ... ..	170	8	213	199
Jericho ... ..	169	8	171	—
Mt. Seymour ... ..	158	11	299	215
Oatlands ... ..	139	17	194	160
Bow Hill ... ..	169	9	—	—
Andover ... ..	—	—	227	173
Woodbury ... ..	135	8	167	—
Beaufront (Ross) ... ..	71	5	184	144
Bendeemer ... ..	—	—	235	209
Glen Connell ... ..	—	—	217	165
Campbell Town ... ..	70	12	181	162
Hanleth ... ..	98	4	236	131
EAST COAST.				
Kellevie ... ..	—	—	227	—
Buckland ... ..	112	12	208	—
Triabunna ... ..	148	8	189	181
Louisville ... ..	109	11	—	—
Swansea ... ..	77	11	196	201
Riversdale ... ..	74	5	226	125
Cranbrook ... ..	—	—	171	112
Lake Leake ... ..	192	11	303	266
Ormley ... ..	86	9	145	210
Fingal ... ..	90	4	156	189
Cullenswood ... ..	120	7	162	202
St. Marys ... ..	151	5	147	105
Tower Hill ... ..	—	—	157	—
Mathinna ... ..	106	5	190	199
Scamander ... ..	74	4	80	157
St. Helens ... ..	104	7	81	224
Gould's Country ... ..	259	7	170	343
Lottah ... ..	406	16	320	413
Poimena ... ..	—	—	235	514
Eddystone Point ... ..	170	12	168	—
Boobyalla ... ..	192	10	110	174
KING ISLAND.				
Cape Wickham ... ..	—	—	123	207
Yambacoon ... ..	—	—	169	208
Currie Harbour ... ..	—	—	251	—
Monk Breton ... ..	—	—	217	—
Surprise Bay ... ..	—	—	275	—
FLINDERS ISLAND.				
The Hermitage ... ..	182	16	—	—
Thule ... ..	237	17	144	244
White Mark ... ..	220	13	—	—
OTHER ISLANDS.				
Kent Group ... ..	—	—	235	238
Goose Island ... ..	126	10	99	189
Cape Barren Island ... ..	—	—	196	248
Swan Island ... ..	—	—	148	177
Maatsuyker Island ... ..	403	20	322	424

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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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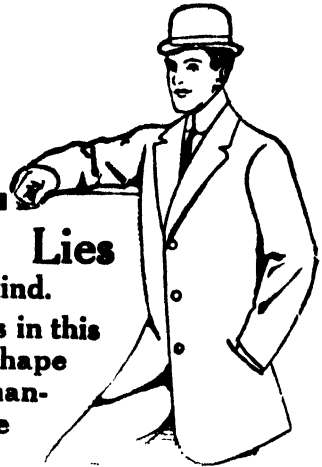
## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

The "Gazette" is sent free to all members of Boards of Agriculture. Any member not receiving a copy should communicate with the office at Hobart.

Correspondents are requested to send in matter not later than the 5th instant.



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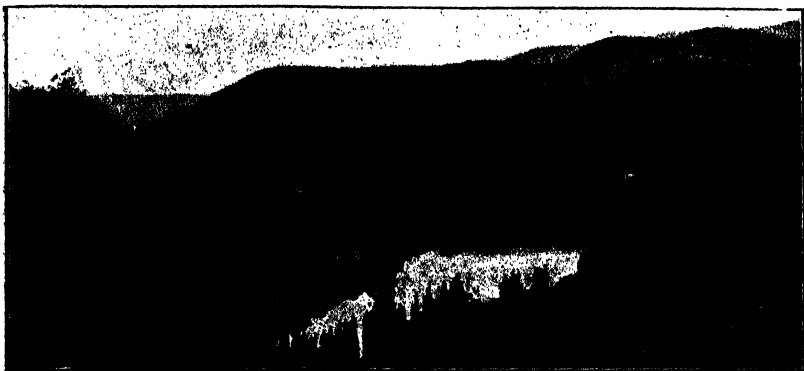
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THE JOURNAL OF THE AGRICULTURAL DEPARTMENT,  
TASMANIA.

NEW SERIES.  
VOL. XIX., No. 6.

JUNE, 1911.

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## SYSTEM IN THE MANAGEMENT OF POULTRY.

**I**N his work, entitled "Modern Egypt," the Earl of Cromer quotes Sir Arthur Helps as stating that half the evils of the world arise from want of accuracy. Most of the failures, in an agricultural sense, are due to want of system, or a faulty one.

In the egg-laying competition carried out at Springvale Gardens Mr. Terry is showing what fowls are worth keeping and those that are not profitable in a manner which should command the serious attention of all who display interest in our feathered friends.

The Dairy Expert can do the same work in his Department by the use of the Babcock tester.

In the realm of agriculture the farmer in a great majority of cases does not know the actual state of affairs, and what is saddest of all, does not care.

In the first competition we saw that one pen of six birds laid 410 eggs only, and another 1248. That this was no accident we can prove by scanning the returns of the recently-finished second year of this interesting procedure. Whilst the figures are on the up-grade (which is a gratifying and encouraging feature of this work), it will be seen that two pens laid each 614 eggs for the period, whilst the winner "cackles off" with no less than 1318 eggs. These figures must arrest the attention of the most obtuse.



In the first competition the average of all the fowls stands at 161 eggs. A distinct improvement through this channel is gained by the fact that in the second period the average number of eggs laid by each bird rose to 165, which actually fell short of what should have been reached, because two pens were withdrawn during the last three months of the competition. Again, some pens did not show eggs for a considerable period, and yet the average per bird was as stated above. Is it, therefore, any exaggeration to state that by means of these searching analyses of what the pens actually do (and what is going on in the farm-yard, unknown though it be to the farmer or his "better half") the number of eggs laid per bird by the employment of system in respect to selecting birds of an egg-laying strain should not fall short of 180 per annum.



*Egg-laying Competitions: View of the Pens.*

Taking as a basis for calculating the monetary value of a fowl that eggs are worth 1s. per dozen, the bird which lays 60 eggs in a season returns to its owner 5s., whilst the one laying 180 rises to the amount of 15s. This is hardly just to the energetic hen, because a fowl which can only lay 60 eggs does so during the period when eggs are cheap, whereas the "stayer" will be working away when eggs are scarce, and consequently her return will be nearer the region of £1 than when calculated on the price of eggs being 1s. per dozen.

Now, surely 100 birds returning £100 in a season are worthy of attainment, even if it means the farmer's absence from an odd sale at which he sees nothing suitable to his mood, and where so much time is often wasted—perhaps unavoidably, but wasted all the same.

Now, the farmyard fowl can be neglected, or even despised; yet to anyone who takes the trouble to scan the results as revealed by the work done at Springvale, it is apparent that whether she lays eggs or does not, the feathered creature will retire just as gracefully and willingly with the setting sun and herald his reappearance at dawn; but at the same time she is prepared (quite unwittingly, of course) to respond to system and become a source of profit to her owner, just as when the reverse holds good she will contribute to his appearance in the bankrupt court.

Translated into common English, all that Mr. Terry asks, as shown by his work, is that the farmer should not keep fowls which are hardly worth the food they consume, when with a little forethought he can employ machines of a highly remunerative character.

There is no desire to over-estimate the importance of this branch of farm work, but the difficulty is to get through, as it were, the barbed-wire entanglements which envelop the man who keeps unprofitable fowls, and impress upon him the wisdom of handling profitable stock. The only way that this can be done would be to ask those interested to feel that they were in such an environment that dependence for their sustenance hinged upon fresh eggs, and that one pen would provide a certain number of meals, whilst another would treble the pleasurable period of existence. Which birds would command attention?

The foregoing should be viewed in respect to the financial returns derived from the livestock on the farm; failure will follow in the footsteps of the one and success in the path of the other just as surely as "the moon in her ordered wanderings changes from shield to sickle, and from sickle to shield."

Mr. Terry's final report, which will appear at an early date, should be given close attention by our readers.

## CORRESPONDENCE.

T. U. DUNIAM (Wynyard) asks: "In sowing wheat or oats (drilled in) with super.—say 1 cwt. to the acre—what effect would lime (ground) have if drilled crosswise at the rate of 3 or 4 cwt. to the acre? Or if super. and bonedust of equal quantity were used with the grain, would there be any appreciable effect on the ensuing crop?" It is not a good plan to apply lime and super. to land at the same period on account of the tendency of the lime to render the soluble phosphoric acid into a less soluble form, the proper way being to put the lime on in the autumn and the super. in the spring. As, however, in this case the lime is being drilled crosswise, I cannot see how very much of it can come into immediate contact with the super. A mixture of bonedust and super. is quite safe, assuming the bonedust to be genuine, and should produce more or less good effects for whatever crop it might be used. With regard to wheat, however, I think  $1\frac{1}{2}$  cwt. of the mixture of bonedust and super. would suffice if 1 cwt. of nitrate of soda were sown as a top-dressing upon the young corn fairly early in the spring. The nitrate should be bulked with sand, ashes, or dry soil, and well mixed with the latter, so as to secure even distribution in sowing.—AGRICULTURAL CHEMIST.

## CONFERENCES OF DISTRICT BOARDS OF AGRICULTURE.

**Fingal, May 19.**

A MEETING of representatives of the District Boards of Agriculture was held at the Talbot Arms Hotel, Fingal, on the above date. Mr. Benson, the Director of Agriculture, who was accompanied by Mr. Evans, presided, and the following were present:—Messrs. J. Conway and G. Pratt (Avoca), Alex. Robertson, F. M. Latteu, Holder Bros., and W. Dineen (Fingal), J. W. Yates (Mangana), and Col. Legge (Cullenswood).

The Director outlined the policy of the Department in respect to getting into touch with farmers and the improvement of their work by the diffusion of literature and carrying out experiments of a character suited to the several districts. He dealt at length with the benefits conferred upon countries like Denmark, in the Northern Hemisphere, through co-operation in respect to dairying, and touched upon the wealth won in this respect in New South Wales, Victoria, and New Zealand. The question of quarantine would be well debated at the June conference, and he wished to learn whether his idea of introducing dairy-bred heifers under three years of age from districts in Victoria where no disease had existed for a number of years, would find favour, or whether the maintenance of the present quarantine would be preferred.

Colonel Legge pointed out that as president of the late Council of Agriculture he had always maintained an impartial attitude in respect to quarantine, but with the advance of science in regard to coping with diseases in stock, and the precautions the Director would take, there appeared to be sound reasons why the dairy industry should not be impeded.

The Director dealt with a wide range of subjects, and stated that if the Government could see its way clear to furnish him with a State farm he could do a lot of highly practical work in respect to testing cereals and other crops, raising clean seed, and the production of forest trees. He would also favour the selection by the Director of Education of a number of teachers from State schools, who would assemble at the farm and get a thorough course of instruction in agricultural matters. Rather than attempt the production of experts, his efforts would be directed towards turning out men and women from the farm who would be practical farmers.

A hearty vote of thanks was accorded the Director for his practical address.

**Scottsdale, May 23.**

The Director of Agriculture (Mr. A. H. Benson), accompanied by the Organising Expert (Mr. L. A. Evans), met representatives of District Boards of Agriculture at the State school, Scottsdale, on the above date.

The chair was taken by the President of the Scottsdale Board of Agriculture (Mr. J. B. Hayes), and there was a good attendance.

The President, on behalf of those present, tendered a hearty welcome to the visitors. The Director acknowledged the welcome, and pointed out that a general conference of delegates of Boards of Agriculture and kindred societies would be held at Launceston in June, and he hoped members would consider the programme and come forward prepared to discuss it.

The first item which would be considered at the conference would be, "How Best to Improve the Dairy Industry." When he first came to Tasmania he learned how backward this State was in regard to dairying, and yet the country was very highly adapted for milch cows. He briefly pointed out that this industry has raised Denmark from a condition of poverty into the foremost dairying country in the world. Danish butter secured the highest prices in the London markets. In the early nineties when he came to Australia portions of the Northern Rivers of New South Wales were handled on co-operative lines, and to-day the butter-factory at Bryon Bay was paying £40,000 a month for cream. Queensland was rapidly coming to the fore as a dairying centre, and areas of country quite as rich as the Scottsdale district, covered with dense scrub, had been cleared and were being devoted to dairying. The price of the land had risen from £2 to £20. If Tasmania was to go ahead we must push on the dairying industry, as butter was an article which did not deplete the fertility of the soil, and being sold in the markets oversea, brought fresh gold to the State.

Cereals and all such products as were marketed on the mainland were uncertain commodities to grow, as the market rose and fell with the prosperity or otherwise occurring in Australia, and for that reason it behoved Tasmanians to largely concentrate their energies in respect to raising products which found buyers other than those in Australia.

As to the quality of the butter Tasmania produced there could be no question. Ninety-eight per cent. of the butter exported from New Zealand was graded first-class, and Tasmania came next with 95 per cent. of butter similarly graded—a higher percentage than was reached on the mainland of Australia.

In going through the dairy centres here farmers had complained to him that they could not buy in this State cattle from a dairy strain. Two courses were open in "pushing" the dairy industry. One was to use first-class bulls from milking dams, and thus grade up, which would take time; and the alternative was to import dairy heifers from Victoria. He pointed out that the present quarantine period of 90 days was not an absolute preventive of pleuro-pneumonia. At present cattle from any part of Australia could be introduced into quarantine, and as no history of the health of the herd was demanded, "lungers," or cattle that had had pleuro and partially recovered, might run the gauntlet of quarantine, and months afterwards cause infection in this State. His proposal was to introduce dairy heifers of not more than three years

of age from recognised clean herds in Victoria, such cattle to be accompanied by certificates that pleuro had not existed in the district in which they were born during their lifetime, that the heifers were free from disease, and that they had passed the tuberculin test. He pointed out that should pleuro be introduced here the disease can now by advanced veterinary science be stamped out, and the cattle protected by inoculation with the attenuated virus of the disease.

The Director said that no facilities were to be offered cattledealers in respect to quarantine, nor was it proposed to alter the law in respect to dairy sires. He desired to make it quite clear that the position had been forced upon him, as head of the Agricultural Department, by having to respond to the reiterated dearth of cattle of a dairy strain in this State in sufficient numbers to meet the altered circumstances in respect to the advance of the dairying industry.

Mr. Benson dealt at length with the necessity for carefully selecting seed potatoes, and dipping them (after cutting) for an hour and a half in formalin; also spraying with Bordeaux or Burgundy mixture, and when possible obtaining a change of seed.

The Director also dwelt upon the desirableness of the Boards initiating experiments which the Department could assist in financially. This would help to maintain interest in the work of the Boards. He hoped that the Government would see fit to place an experimental farm at the service of the Department. Of course work of an experimental character could not be expected to be remunerative, apart from its educational character.

A hearty vote of thanks was accorded the Director for his interesting address.

In regard to the introduction of American pines on the sour lands between Smithton and Marrawah, it is, of course, difficult without actual experiment to suggest species which would be apt to thrive under the changed climatic conditions. Since the introduction of eucalypts and wattles into the United States has not proved successful outside of California and Florida, it would seem that, conversely, the greatest success in the introduction of American species into Tasmania would be secured with trees native to these States. This is supported by the apparent success with which the Monterey pine (*Pinus insignis* or *radiata*) has been grown in Tasmania.—[FROTHINGHAM.]

The organic matters which are added to the soils in manures and in vegetable and animal remains must go through certain processes of decay before the plant foods they contain become available to crops. The changes are brought about by bacteria, which act as digestive agents. If the soil is poorly aerated, deficient in moisture, lime, or other mineral plant foods, the course of this digestion or decay of organic matter is modified. Acids accumulate, and the bacterial action is largely replaced by that of fungi and forms of bacteria that can grow in the presence of acids. The organic matter becomes more or less pickled or humified; peaty soils represent the extreme of this type.

## CONFERENCE ON POTATO INDUSTRY.

THE following resolutions were passed at a conference of delegates held at Uiverstone on the 10th and 11th of May last:—

### VIOLATION OF INTERSTATE FREETRADE.

Hon. H. A. Nichols moved: "That in the opinion of this conference there is an abrogation of the powers of the Federal Constitution whilst potatoes water-borne from one State are subject to inspection, charges, rejection, &c., at the port of entry, when similar charges and inspection are not made regarding potatoes water-borne from within the State, or brought per train from another State, or from provinces within such State into the consuming centre."

### POTATO MANUFACTURES.

Hon. H. A. Nichols moved:—"That the Federal Government be asked to offer a bonus for the manufacture of potato starch, starch, sugar, dextrine, and other produce of the potato."

### RAILWAY CHARGES FOR REJECTS.

Mr. A. D. W. Tongs (Leven) moved—"That this conference protests against the heavy rates charged on condemned potatoes returned per train to the grower."

### DOUBLE INSPECTION.

Mr. Foster (Campbell Town) moved:—"That the inspection certificate granted produce at the port of export be a sufficient pass through the port of entry, no further inspection to be necessary."

### A TEST CASE WANTED.

Mr. J. R. Green (Kingborough) moved—"That this conference is of opinion that legal action should have been taken in 1909, and again in 1910, against other States owing to their rejection of Tasmanian produce, and emphatically declares that in the event of similar breaches of freetrade between the States in the future the State Government should at once cite a test case and carry it to a final issue."

### IS THERE BLIGHT IN WESTERN AUSTRALIA?

Mr. Tyler (Kentish) moved—"That this conference is of opinion that Irish blight having been reported as existent in Western Australia last year and this, steps should be taken to prove the truth or otherwise of the report, and if true the Government should at once take steps to force the market open."

### PREVALENCE OF BLIGHT.

Mr. Johnson (Table Cape) moved—"That the Irish blight being a disease common to all the States of the Commonwealth, the time has arrived when the disease should be admitted as being common to the States, and all potatoes reasonably free from such disease and of good

value for human consumption should be allowed to pass from State to State without hindrance.

Mr. Moore moved—"That in the opinion of the conference spraying is generally effective, but further experiments are required, and for the present it is not wise to make it compulsory."

#### A GOVERNMENT FARM.

Mr. Lipscombe (Queenborough) moved—"That in the opinion of this conference the time has arrived when the Government should establish an experimental nursery, farm, and school."

Hon. H. A. Nichols moved—"That one delegate from Darwin, Lass, Franklin, and Wilmot representatives on this conference act as a deputation to convey all resolutions passed at the conference to the Federal and State Ministers, urging their help in carrying into effect such resolutions."

#### AN APPEAL TO THE FEDERATION.

Mr. Payne moved—"That in the opinion of this conference the Federal Government should be immediately approached, and urged to introduce legislation early next session to prevent any violation, by inspection laws or otherwise, of freetrade between the States as regards produce."

#### ENGLISH SEED IMPORTS.

Mr. Copplestone (Scottsdale) moved—"That the Minister for Agriculture be asked to ascertain from Western Australia why clean potatoes from Tasmania are refused admission, whilst they propose to admit clean potatoes from England, when it is known that Irish blight is common to both countries."

#### RAILWAY FREIGHTS ON PRODUCE.

Mr. Brooks (Richmond) moved—"That this conference protests against the freight charged for small consignments of potatoes, flour, and oats, viz., 15s. per ton, whereas the freight on large bags is only 10s. to 11s. per ton."

#### QUARANTINE.

Mr. Hingston (Deloraine) moved the following amendment—"That while the conference has every sympathy with the dairymen, it cannot agree to any reduction of the period of quarantine."

#### CONTINUING THE WORK.

Hon. H. A. Nichols moved—"That a delegate from this conference be appointed to attend the Launceston conference, with instructions to place before that gathering the resolutions passed at Ulverstone, with the object of obtaining the concurrence of that gathering."

## REPORTS OF FARMERS' AND FRUIT-GROWERS' MEETINGS.

Exeter, May 17.

THE Director of Agriculture (Mr. A. H. Benson), accompanied by the Organising Secretary (Mr. L. A. Evans), visited Exeter on the above date for the purpose of attending a meeting under the auspices of the Tamar Farmers' and Fruitgrowers' Association, members of which were desirous of affiliating with the Department of Agriculture in the organisation movement at present proceeding in the various parts of the State. On arrival at Exeter, they were met by Mr. Steele Traill (President of the Association), and were driven along the Glengarry-road as far as Saundridge Park, and were greatly interested in what they saw. In the afternoon a meeting was held in the new hall, when there was an attendance of 55 farmers. The gathering was presided over by Mr. Steele Traill, who welcomed the Director. Mr. H. Robinson (Secretary to the Association) referred to the desire to organise the farmers in the surrounding districts.

Mr. Benson said the meeting was a step in the right direction. Farmers and fruitgrowers were finding that organisation and co-operation were necessary. In all agricultural pursuits organisation was essential to success. The organisation of agriculture was almost universal in its application. He instanced the system of agricultural organisation obtaining in Denmark as having raised that country to one of the foremost dairying countries of the earth. He also made reference to the good work that had been done in the raisin-growing industry in California by organisation and co-operation. By active combination in the marketing of its products, California took the lead in the world's fruit industries at the present time. They had to go no further than Australia to see the remarkable progress that had been wrought in the dairying industry, which had been worked on lines of sound organisation. They all had heard of the Northern Rivers districts of New South Wales. He was through that country in 1893, and it was then a dense tropical jungle. There was hardly a farmer in the district who was not being carried on the storekeepers' backs. The first movement was a co-operative butter factory, which to-day was paying out £40,000 a month for cream. By organisation and co-operation of the producers of Queensland enormous strides had been made. What the other States had done could be accomplished in Tasmania. Organised effort meant they would have one system, and they would get better prices. When he came to Tasmania he found there had been a number of branch boards, in which he saw a good nucleus for the organisation of the farmers. The work of reorganising the moribund boards was being successfully carried out. He could not individually know every man



on the land, but he could know the organised bodies. For their own good they should affiliate with the Department. The days of individualism in agriculture were past. The individualist was bound to go down. It was only by combination they could bring their industry on to a higher plane. The Tamar Valley, he considered, was destined to become one of the best fruitgrowing centres in the world—he did not say there were not other places that could grow as good fruit—and the fruit he saw at the show was the equal of any he had seen anywhere. The farmer in many cases was too inclined to isolate himself. He had been practically all over the world, and what knowledge he had to-day was gained by interchanges of ideas. Theoretical knowledge by itself was useless, but the man who could apply the theoretical knowledge was worth ten theorists. In his travels he had found out that it was by rubbing shoulders with their neighbours that they could gain the knowledge the others possessed. He had seen the great results of organisation in all parts of the world, and the more brains that were devoted to studying a subject the greater the chance of the truth being arrived at. He strongly advised them to meet together and discuss questions, and give their experiences, which would prove beneficial to one another. He proposed, if permitted, to carry out a series of experiments in manuring, treatment of fruit trees, drainage, liming, &c. He did not want them to be carried out by the Government, but through the local bodies in the different centres, so that they might be criticised by the farmers, and if there was a fault the farmers could see it. The oldest farmer in the room was not too old to learn. He wished to get into touch with the organised bodies, so that when any action, such as legislative measures, was being considered, he could consult the men on the land.

The Director then dealt at some length with the Irish blight in potatoes, and invited his audience to question him, if they desired any information on any point that he had not made quite clear.

Quite a number of questions were asked, and answered by the Director, who urged the rotation of crops, in which clover took a prominent part: then a manure was wanted 'fairly rich in potash and phosphoric acid. Potash was the dominant factor in the potato.

Mr. H. Robinson then moved: "That this meeting is in strong sympathy with the proposal to organise the producers in the Tamar districts, and to affiliate with the Department of Agriculture, and pledges itself, individually and collectively, to further the interests of the Tamar Farmers' and Fruitgrowers' Association on every possible occasion."

The motion was seconded by Mr. Tyson, and unanimously agreed to.

The following delegates were appointed to attend the agricultural conference, to be held in Launceston on June 15 and 16:—Messrs. Steele Traill (Exeter), W. Gowans (Glengarry), — Kerrison (Winkleigh), J. Ashman (Deviot), B. C. Archer (Gravelly Beach), — Robson (Rosevears), D. T. Medwin (Windermere), J. Lutwych (Sidmouth),

R. V. Jillett (Beaconsfield), --- Morgan (Beauty Point), H. Robinson (Frankford), T. Squires (Black Sugar Loaf), --- Drake and --- Jones (Bridgenorth and Rosevale).

At the instance of the Chairman, the Director of Agriculture was thanked for his attendance and counsel.

#### **Newnham, May 25.**

In connection with the work of the Director of Agriculture in organising the farmers of the State and securing affiliation with the Department for the more efficient dispensation of the funds at his disposal and the better utilisation of the services of the experts associated with the Department, Mr. Benson, accompanied by the Agricultural Organiser (Mr. L. A. Evans), paid a visit to some of the East Tamar districts on the above date. During the past month preparations have been in progress with the end stated in view, and it was deemed advisable by those having the arrangements in hand that the Director should be given an opportunity of seeing some of the country on the eastern bank of the river. Accordingly after breakfast on 25th ultimo, Messrs. Benson and Evans were picked up in the city, and, in company with Messrs. Charles White, J. Powell, J. A. Box (Warden of Lilydale), H. Luck, J. Peters, H. Oliver, and R. J. Scifleet, were driven out through Newnham, and along the George Town-road, through Landfall, Dilston, Rostella, and Windermere, to Woodlawn, returning by the back road *via* Egg Island Creek, &c., to the George Town-road again. Leaving the conveyance at "Eastfield," the party traversed that property through "Allenvale" and "Mt. Stewart" to Mr. J. Powell's residence, and in the evening participated in a well-attended meeting in the local school hall, when the formation of an association was decided upon.

Preparations were made by Mr. and Mrs. Medwin and family to receive the visitors at "Woodlawn," and a sumptuous dinner was awaiting the travellers. Needless to state, after such a long and pleasant drive in the exhilarating atmosphere the hospitality extended was of a welcome character. A short toast list was honoured.

Mr. Medwin, after the loyal toast had been honoured, proposed "The Agricultural Department," coupled with the names of Messrs. Benson and Evans. The mover said they were only too pleased to have the visitors among them, as it was desired that the Director should see the large area of good land there was on the eastern side of the river, and before which there should be a great future. The western side had made great strides. They did not envy the other side of the river, but considered both sides could work together with nothing but the future of the Tamar Valley in view. They were, he said, about to organise, and he trusted a reciprocal feeling would be engendered.

A response was made by Mr. Benson, who thanked Mr. and Mrs. Medwin and their daughters for the splendid way in which they had been entertained. He had thoroughly enjoyed his drive through the

district, which he was sure only needed to be better known to be appreciated to its full.

Mr. L. A. Evans also replied.

Mr. Benson then gave the toast of "Prosperity to the East Tamar," and coupled with it the name of Mr. Medwin. He referred to the work that he desired to see undertaken by his Department, and said that it had been decided to establish a department that would, in addition to dealing with immigration matters, also be a bureau of intelligence, &c. Records would be kept of available lands for settlement. Every man to arrive in the State would be met, and he would be given any information desired in regard to the State. The plans had been submitted for Parliamentary approval. A certain amount of money had been placed at their disposal, and he hoped to be able to make a good showing. They had a magnificent little country in Tasmania; theirs was one of the finest climates in the world; they had some of the finest soil; and, generally, the conditions that obtained were entirely favourable to the development of the white race. He had been very pleased with what he had seen of the East Tamar, where there were thousands of acres well adapted for producing the highest quality of fruit, while there was plenty of land admirably suited for dairying and general agriculture.

Mr. Medwin responded briefly, and the party was given an opportunity of inspecting the produce of the "Woodlawn" orchard. Much interest was displayed in the highly-coloured Sturmers, the New York Pippins, Scarlets, Jonathans, and Munro's Favourites. Some of the latter variety were more like wax models. The young trees of the orchard were inspected, and the Director and Mr. Box discussed with those present the methods of pruning.

On the return, the young orchard of Mr. Button, at Dilston, came under review, and the promising condition of the trees was commented upon. Mr. Chas. White's up-to-date piggery was inspected, and a deal of interest was shown in the grain-feeding experiments that are being conducted by Mr. White to prove a contention that good grain can be fed to pigs at a profit, the undertaking being purely from the point of view of a cereal grower. The experiment is being made with a litter of eight pure Berkshires, and a complete account has been kept of the grain consumed, its marketable value at the time, and the progress made by the animals since they were farrowed. When the test is completed the results should be particularly interesting and instructive, especially from the point of view that originally set the experiment in motion. Mr. White has another litter of the Berkshire-Yorkshire cross in the pens also, and these he intends to treat in similar fashion, with the object of ascertaining whether there is anything in the claim that the cross is better than the pure animal. Mr. Benson was particularly interested in the experiment, and stated that one of the works to be undertaken at the experimental farm, should it be established, would be to conduct tests to show the actual cost of producing a pound of pork under Tasmanian conditions, and the feeding-value of foodstuffs used in doing so.

An adjournment was made to the homestead, where refreshments were partaken of, after which the cow stables and silos at "Allenvale" were inspected, Mr. Forsyth having joined the party at "Eastfield." The method attached to the conservation of the green fodder in a condition of nutritious succulency was explained, and as Mr. Forsyth had sufficiently emptied one of the tubs to allow of a complete examination of the stuff being made, the inspection was made doubly interesting. The mixture used was peas and Algerian oats, and a fine bright sample of silage was found. Tests were made for a sign of mould in the fodder by Mr. Benson and others, but not a trace of the air having gained access could be found. Numerous questions were asked of Mr. Forsyth, who gladly supplied the information desired, particularly in regard to feeding value, and comparisons were made with hay and bran feeding. The cow stables were also visited, and the arrangements were interestingly explained and discussed. Then the bull paddock and its occupants came under review. A few of the young stock were looked over, and two young bulls sired by a son of Royal, by Jamie of Oakbank, &c., were admitted to be good-quality stuff, so much so that one of them found a new owner in Mr. Medwin on the spot.

Along the road the party travelled to Mr. J. Peters' young orchard, where several of them accepted the invitation of that gentleman to have a look through. These trees have made exceptionally good progress. The trees are furnishing splendidly in fruit spurs, and should next year carry a fair load of fruit. The same might be said of the young orchard of Mr. T. Williams, adjoining.

An adjournment was then made to the residence of Mr. James Powell, where the party was entertained at a sumptuous dinner, which proved most acceptable to the tourists. After full justice had been done to the good things provided for her guests by Mrs. Powell, who was extended hearty thanks for her hospitality, the school near by, where the meeting was to be held, was visited. There was a good attendance of farmers in waiting, and no time was lost in getting to business. Mr. R. J. Sadler, M.H.A., was voted to the chair, and apologies were received from Messrs. Guy and Howroyd (Ms.H.A.), — Hubbard, D. V. Allison, A. Miller, Matthew Taylor, and others, most of whom expressed a desire to participate as members of the proposed association.

The chairman, after referring to the object of the meeting, extended a cordial welcome to the district to the Director and Mr. Evans. He applauded the object of the gathering, and considered they were doing the right thing in organising to push forward the agricultural, dairying, pastoral, and fruitgrowing industries. In his mind there was no doubt as to the future before the valley of the Tamar, and he strongly advised them to band together with a view of protecting their own interests, and to be in such a position as to obtain the advice of the Director of Agriculture and the experts. He considered there was just as good a future for the east side as for the west side of the Tamar, and he hoped before long that the large shipping firms of the world

would recognise them and send their vessels to the port. It was second to none in the Commonwealth, and the largest ships afloat could find a safe anchorage in the harbour. They were under an obligation to their Departmental visitors for devoting so much time in going through the district, and he was quite sure they would highly appreciate the valuable advice and assistance the Director would give them. As member for the district he would be glad at any time to assist the new association.

In concluding, the chairman introduced Mr. Benson, and asked that he should address the gathering. The Director spoke on the necessity for organisation, and congratulated the farmers on their apparent desire to come together for their mutual benefit, and for the advancement of the district. They had land on the East Tamar capable of fruit-growing, dairying, and cropping of all kinds, and they should organise and let the rest of the world know there was such a place as East Tamar. When he came to Tasmania he found there was a lack of organisation, and he pointed out that while he could not possibly come into touch with every man on the land individually, he could keep in touch with associations of farmers, and when he knew their wants he would be able to help them in many ways. At times when the Fruit Expert had only just returned from a visit to the Tamar valley, individual applications had been received for his services. That kind of thing would be done away with in the future, for when one of the Department's experts was in a district he would be there at the instance of the Farmers' Association. Part of his work in the future would be the carrying out of experiments. He wanted the farmers to conduct these experiments under the supervision of the officers of the Department. With the farmers behind him he would have no difficulty in doing good work on their behalf. He was satisfied that the Tamar valley was going to be one of the noted apple-growing centres of the world. The fruit grown there had remarkable colouring. At the same time, other industries could be conducted with just as good results as in any other part he had visited. He had seen during the day as good ensilage as could be produced anywhere in Australia. In the past there had been too much of the happy-go-lucky method in farming in Tasmania. The State was admirably suited to dairying. The dairying industry had pulled other parts practically from poverty to wealth. Tasmania could produce butter equal to anything turned out in Australia. That had been demonstrated during the past season, and he hoped in the near future to see the local product shipped under the name of "Tasmania," and not, as at present, included in the Victorian exportations. Should they send a million pounds worth of butter away it would not deplete their soil of its natural plant food. Instead of sending away large quantities of hay, straw, grain, &c., it should be consumed in Tasmania, and the produce should be sent away in concrete form. As long as they sent away the raw material they would not get back to their land the value of the plant life that had been taken from it. He was extremely pleased with his visit to the district. They had land that could produce anything.

There was a large area that in fruit-culture alone could turn out—not thousands, but hundreds of thousands of bushels. Mr. Benson then dealt at some length with the question of over-production, and referred to what had been done in other countries, especially in California, in the raisin and orange growing industries, and concluded by saying that in his opinion the question of over-production was not going to worry them for the next 20 years at least. With the present export of apples the people of England would be able to eat an apple and a half each, and he thought that their capacity was much greater than that. He wished them success.

Mr. H. Button moved, "That in the opinion of this meeting of farmers and fruitgrowers of the East Tamar districts it is advisable that there should be an amalgamation of interests for their mutual benefit, and that an association, to be known as 'The East Tamar Rural Producers' Association,' be formed."

The motion was seconded by Mr. D. T. Medwin, and was supported by Messrs. Powell and L. A. Evans, who referred to the advantages to be gained by organisation. From what he had seen during recent years he thought that fruitgrowing was going to be the mainstay of the Tamar valley. They had a magnificent waterway in the centre of a fine scope of country, and an extremely good climate. There was undoubtedly a big future before the district, and it could be fostered and secured by proper organisation.

The motion was unanimously agreed to.

Mr. Gerald E. Archer then moved, "That this association affiliate with the Department of Agriculture in regard to promoting the agricultural, horticultural, and pastoral interests of the districts concerned."

The motion was seconded by Mr. J. A. Box, and unanimously agreed to.

The election of office-bearers for the year resulted as follows:—Patron, Mr. W. C. Grubb; Vice-Patrons, the members for the district; President, Mr. D. T. Medwin; Vice-Presidents, Messrs. C. White, J. A. Box, G. E. Archer, W. Clare, W. Forsyth, H. Luck, T. Owen, C. West, W. Kidd, and J. Powell (with power to add); Secretary, Mr. Carnie; Treasurer, Mr. Chas. White.

The membership fee was fixed at 2s. per annum, and the following gentlemen were appointed to represent the Association for the principal districts at the agricultural conference to be held at Launceston on June 15 and 16:—Messrs. C. White (Newnham), G. E. Archer (George Town), and C. W. Booth (East Tamar).

After a short conversational discussion the next meeting was fixed for June 12, when the questions to be discussed at the conference are to be considered.

Votes of thanks to the Director and Mr. Evans, and to the chairman and conveners, concluded one of the most successful meetings yet held on the East Tamar.—["Examiner."]

## SOWING GRASS SEEDS.

By JOHN OSBORNE, JUN., Horticultural Instructor.

**I**N sowing grass seeds several conditions must be observed, the variety of soil and nature of the rainfall being very great factors in the success of the operation. On bush land just cleared and burnt off, the seed may be sown in the late autumn, and in open places a bough or leafy branch may be drawn over in order to partly cover it till germination takes place. Where the rainfall is good this will take place in a few days. Where the rainfall is light the land should be loosened with a pair of harrows before sowing and covered in this way. On meadow land or in the open field the land should be brought to a very fine tilth, the roller being put on immediately before sowing. A flat wooden instrument, 7 feet long and 3 feet 6 inches wide, with three sides 9 inches high, to which a quiet horse may be attached, is used to cover the seed. This instrument is called a "punt."

Grass paddocks are often prepared at "seeding time" on the farm, grass seed and clover being added to the oats placed in the receiver of the drill, the whole afterwards growing together. At harvest time the grass and clover will be some 6 or 8 inches high, and forms what farmers call a "good bottom of grass." The paddocks are ready for stock when the crop of oats has been gathered.

When preparing a lawn or ordinary grass plot particular attention must be paid to the preparation of the surface, a very fine tilth being necessary. The land must be rolled carefully, and to secure even distribution of the seed it should be thoroughly mixed with fine moist soil or sand. If kept for four or five days, it will be possible to ascertain if a good percentage of germination may be looked for, as the radicle of the seed will then be sufficiently developed to determine its value. A light covering should be given the seed after sowing. When the grass is from 2 to 3 inches high a roller may be passed over it during fine weather.

As the whole object of artificial manuring is to supplement the deficiencies of the soil, it is highly desirable that a farmer should ascertain by trials in the field what is the actual amount of increase which he obtains from the application of the manures he purchases. A few carefully-made experiments will teach him what his land and crops are really in need of. Should he use superphosphate as well as nitrate of sodium for his wheat? What dressing of the nitrate is most economical? Is superphosphate alone sufficient for his turnip crop, or should ammonia or nitrate be employed as well? What is the smallest quantity of superphosphate sufficient for the crop? Will it pay to use potassium salts for his seeds, his pasture, or his potato crop? These and many other questions can only be answered by trials on his own fields. On the farmer's knowledge of such facts will depend the economy with which he is able to use purchased manures, which are by some wastefully employed.—[WARINGTON.]

## A COURSE OF INSTRUCTION IN PRACTICAL DAIRYING.

By A. CONLON, Government Dairy Instructor.

(Continued.)

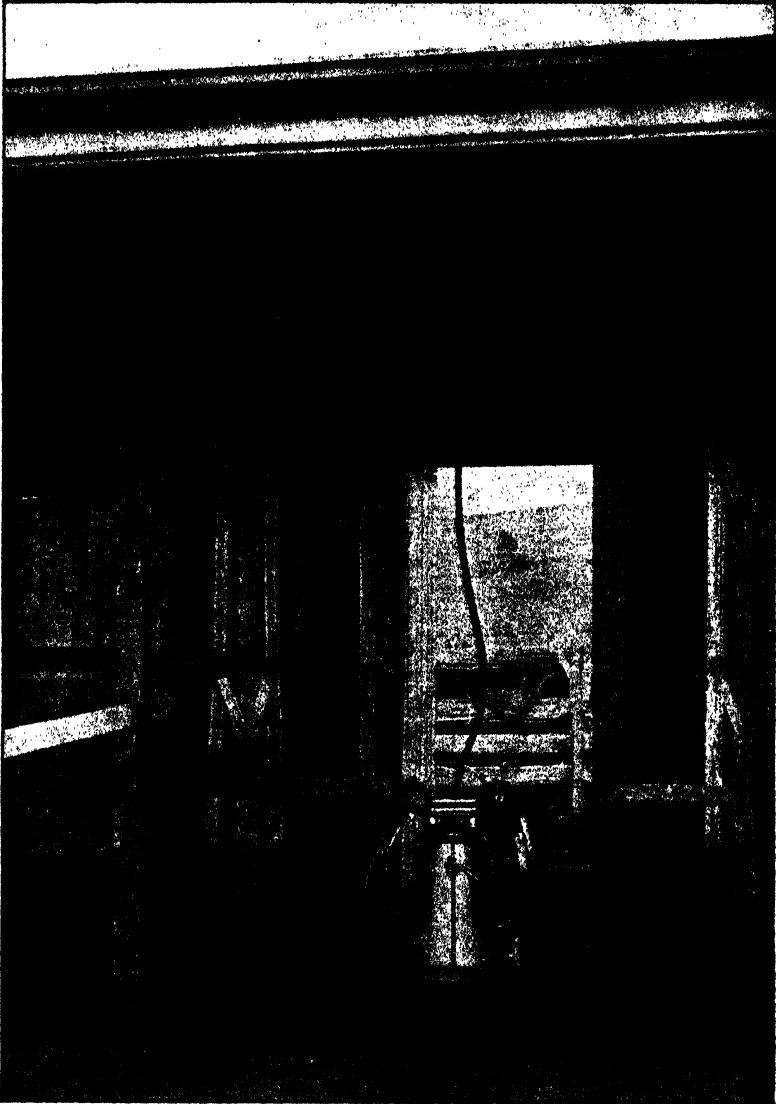
ONE of the most successful breeders, and probably the best judge, of Ayrshire cattle in the world is Mr. James Dunlop, of Fenwick, Kilnarnock, Ayrshire. This gentleman was a member of the Scottish Agricultural Commission which recently visited Australia, and was specially retained by the executive of the Royal Agricultural Society of New South Wales to judge the Ayrshire classes at the Easter show. The writer had the extreme pleasure of being present during the time Mr. Dunlop was judging, and is deeply indebted to that gentleman for his courtesy in going round with him on the following day and demonstrating personally, upon the winning cattle, what the Ayrshire of to-day is and should be. The writer's views of the so-called *show* Ayrshires of a few years ago in Tasmania are fairly well known, and it was gratifying to find the correctness of these views so emphatically endorsed by the remarks of Mr. Dunlop, who was particularly severe upon the puny animals which, until recent years, were so prevalent on our show-grounds. He is himself honorary secretary of two milk-record societies in Ayrshire, and an initiator of this up-to-date movement; and he assured the writer that this work is having a very palpable effect on the size and *performance* of the modern Ayrshire milch cow, and also that the small-framed, small-teated, showy animals are only bred in Scotland now for *export*. Presumably there are other places besides Tasmania where conservatism still blocks the march of progress.

### JERSEYS.

It is a pity that space will not permit of a more detailed history of this magnificent breed of dairy cattle, as it has often occurred to the writer that the inhabitants of the Isle of Jersey were unconsciously the real initiators of the present-day methods of selecting and culling by keeping milking records. Anyway it is a well-authenticated fact that the islanders have for very many years past taken every conceivable precaution to avoid using a bull *unless the dam was a heavy and rich milker*. There, indeed, we have the germ of the so-called scientific methods of the present day. Until comparatively recent times very little thought was given to the conformation of the animal, but a foreign demand setting in—notably from America—it was soon found necessary to give more attention to breeding in order to meet the exigency of the foreign buyer, who insisted, not only on purity of blood and high milking qualifications, but that the animal should be shapely and conform to what was then probably a mythical ideal.



The origin of the breed, like that of so many others, is somewhat obscure, but it is generally agreed that the Channel Island cattle, viz., Jerseys, Guernseys, and Alderneys, are descended from the cattle of



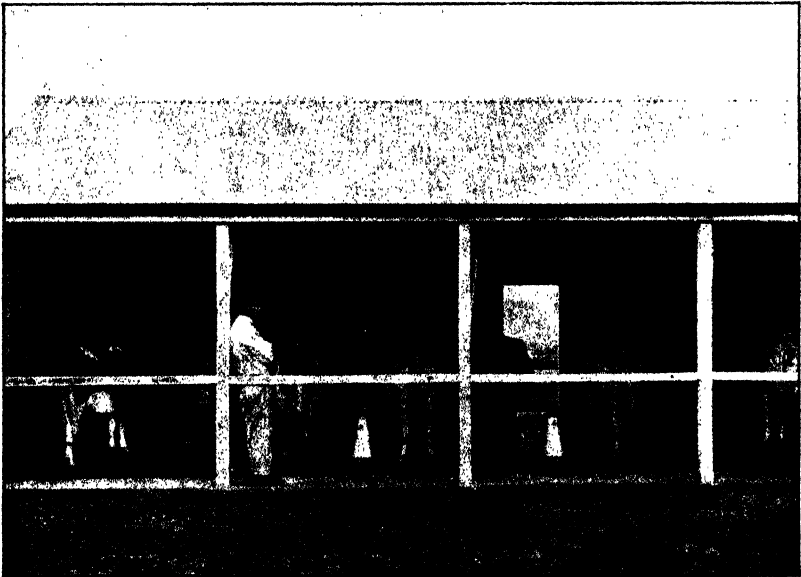
*A Milking Machine.*

Normandy and Brittany, and that their differentiation is due to their insular protection throughout hundreds of years. That the islanders knew they had in the Jersey a phenomenal producer is evidenced by

their anxiety to retain the purity of the breed, for as far back as 1789 a stringent law came into force to "prohibit the importation into Jersey of any cow, heifer, calf, or bull."

The colours of the Jerseys are fawn and silver-grey, and animals of so-called "solid colour" are generally preferred, although it should be understood that "broken colour" is no detriment, as the white patches so frequently seen on these animals can be traced back to the earliest entries of the Jersey Herd-book. "Broken colour" is therefore no indication of the animal not being pure bred.

The breeding, rearing, handling, and feeding of Jersey cattle is carried on in a most systematic way, hence the extreme docility of the female cattle, which is now one of the characteristics of the breed, and



*The Milking Machine at Work.*

has been brought about by consistent kindness throughout many generations. In Jersey cows are not *driven*, they are *led*; a distinction without a difference to too many Australian dairymen.

The richness of Jersey milk is very consistent, no matter how far removed the cow may be from her ancestral surroundings. The Americans have put up Jersey record yields higher than any obtained on the island itself, and the requirements for entry in the "Register of Merit" of the American Jersey Cattle Club, on basis of production of fat, are—a yield of 12 lb. of butter-fat in seven days, or the following yields of butter-fat in one year:—260 lb. if the cow is not more than 30 months old at the beginning of the test; if more than 30 months old and less than four years old, 300 lb.; if between four and five years old, 350 lb.; and if five years' old or over, 400 lb.

The yield of milk in one year may be anything from 600 to 1000 gallons, and the butter-fat content from 4 to 6 per cent. There are, as yet, no records extending over a complete milking period for Jerseys in Tasmania; but at the Hobart show in 1902 Mrs. D. Cameron's Jersey cow "Ranée" was milked under the supervision of, and the milk tested by, the writer, when the phenomenal test of 8.1 per cent. of fat was recorded. Again, in 1909, and under the same supervision, Major W. J. J. Reynolds' Jersey cow "Lady Rose Fox," at the Latrobe show, yielded 23½ lb. of milk, testing 6 per cent. fat.

*Scale of Points for a Jersey Cow.*

1. Head small and lean; face dished, broad between the eyes and narrow between the horns .....	Points. 2
2. Eyes full and placid; horns small, crumpled, and amber-coloured .....	1
3. Neck thin, rather long, with clean throat, and not heavy at the shoulders .....	8
4. Back level to the setting on of tail .....	1
5. Loins broad across .....	6
6. Barrel long, hooped, broad and deep at the flank .....	10
7. Hips wide apart, rump long .....	10
8. Legs short .....	2
9. Tail fine, reaching the hocks, with good switch .....	1
10. Hide mellow, inside of ears yellow .....	5
11. Hind udder full in form and well up behind .....	11
12. Fore udder full in form and not fleshy .....	13
13. Teats rather large, wide apart, and squarely placed .....	10
14. Milk-veins prominent .....	5
15. Disposition quiet .....	5
16. General appearance and apparent constitution .....	10
Perfection .....	100

NOTE.—In judging heifers, omit Nos. 11, 12, and 14.

*The Bull.*

The same scale of points shall be used in judging bulls, omitting Nos. 11, 12, and 14, and making due allowance for masculinity; but when bulls are exhibited with their progeny in a separate class add 30 points for progeny.

*Bulls Contrasted with Cows.*

The head of the former is stronger, wider relatively, and shorter, and the horns are shorter, stronger, and more upturned. The neck is thicker, and is arched. The relative development of the forequarters is greater, more particularly at the withers, breast, and through the heart. The barrel is relatively shorter, the hide thicker, and the limbs stronger

## ANALYSIS OF SOILS AND SUBSOILS.

Instructions for Taking and Sending in Samples to the Department of Agriculture.

**A** ROUGH sketch of the block of land from which the samples have been taken should accompany them. Upon this plan the spots whence the samples have been taken should be approximately indicated; also the position of roads, creeks, gullies, ridges, and the general fall and aspect of the land.

A short general description of the land must accompany the plan. In the case of cultivated land, state how long it has been under cultivation, what crops have recently been grown, and how they have yielded, together with remarks upon the seasons lately experienced. State if any manure has been applied, and give particulars of the kind and quantity; also say if the land has been limed.

In the case of a virgin soil, state whether the land was heavily timbered or only covered with scrub; say what kind of trees or scrub was growing, and whether this has been recently burnt off.

Any information regarding the neighbouring land and the nature of the underlying and outcropping rocks will be useful.

Also state if the land is naturally or artificially drained, and to what extent.

Should the soil in various parts of the block show a very marked difference, it will be necessary to divide the block into two or more parts. Should the different soil occur only in a small patch, this sample may be left out.

In order to obtain a fair average sample of the soil from a block of land equal quantities of it are collected from not less than three spots: more if possible.

The several lots of soil are carefully mixed, and from 2 lb. to 3 lb. taken for the final sample, which is put into a clean canvas bag and securely tied up and labelled. The surface and subsoils are collected in the same manner, but kept strictly from any admixture. All the samples collected are afterwards packed in a wooden box.

Clean bags and boxes must be used, and samples must in no case be left near manure heaps or stables where gases may be absorbed. The precise method of collecting the quantities of earth from which the samples are to be selected is as follows:—

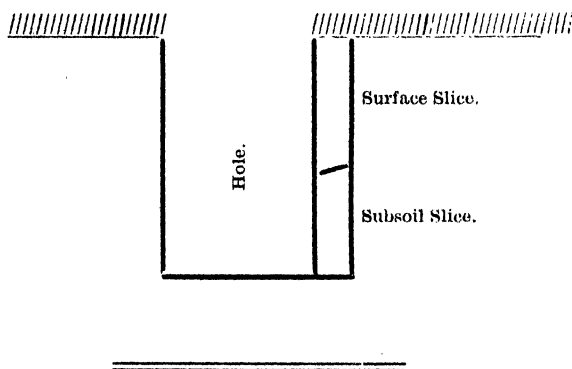
At the places chosen for the taking of the samples the surface is slightly scraped with a sharp tool to remove any surface vegetation which does not form part of the soil.

Vertical holes (like post-holes), from 10 to 18 inches square, are dug in the ground to a depth of 18 inches to 2 feet. An earth auger may be used, but the holes must be afterwards squared with a spade and cleaned out.

Careful observation of the appearance of the freshly-cut soil should be made, and the point of junction of the surface and subsoil should be noted, and whether the demarcation between the two is distinct or not.

The surface sample should be taken uniformly to a depth of 12 inches; the balance to the bottom of the hole should be considered as the subsoil.

For the surface sample remove with a spade from the side of the hole to a depth of 12 inches a slice of soil from 3 to 4 inches thick, and convey it to a convenient position for the mixing process; do the same, according to the depth of the hole, with the subsoil, starting from the bottom of the last slice.



The quality, and therefore the feeding value, of the mangold varies considerably with the soil in which it is grown, and also with the season. Neither of these is under the influence of the grower, but the manuring also makes a marked difference. The influence of the different manures varies with differences in soil, but generally speaking the use of phosphates and potash gives a higher percentage of both dry matter and sugar, while nitrogenous manures almost invariably depress the quality but increase the yield per acre.

Large roots, on the average, do not contain so high a percentage of feeding matter as the smaller ones, but the difference in roots up to 7 lb. or 8 lb. is not nearly so marked as is commonly supposed. It is only when very large roots are grown with sewerage or considerable quantities of nitrogenous manure that the difference becomes considerable. One other point affects the feeding quality of mangolds, and that is their ripeness. Wood showed how unripe roots after storage contain less amide nitrogen (and perhaps nitrate nitrogen), and more proteids or albuminoids.

## GARDEN NOTES FOR JULY.

By J. OSBORNE, JUN., Horticultural Instructor.

### KITCHEN GARDEN.

**A**S the days lengthen the growth of plants will increase rapidly, and the necessity for close attention to the plants already growing and the sowing of seeds to follow in close order becomes greater. The main sowing of such crops as peas, broad beans, onion, carrot, parsnips, leeks, red beet, radish, turnip, spinach, parsley, &c., should be made. A good sowing of cabbage, cauliflower, and lettuce may also be made now. Sow thinly. It is not too late to prepare a good bed on which to sow tomato seed. For preparation see June notes in May number of "Agricultural Gazette." Prepare the borders of beds for the planting of such herbs as sage, marjoram, thyme, rosemary. Dig deeply, and add manure liberally. Plant from 3 to 5 inches apart. Asparagus beds may be planted during the month, the land being made good by a liberal application of decayed manure. The plants to be covered to a depth of 5 inches. Rhubarb roots should be planted not later than the end of the month. Prepare trenches 2 feet deep, and fill up with well-decayed manure to within 6 inches of the surface. Fill up with good clean soil, in which the rhubarb crowns should be planted 2 feet apart. Small or bush fruits may be planted now. Do not postpone such work till later than the end of the month. Beds of raspberry, strawberry, and other bush fruits should be well manured and dug up deeply. In the case of the strawberry, a good hoeing, given while the soil is fairly dry—using the manure as a top-dressing—will be found as beneficial as the digging. Pruning, where it has been delayed, should receive attention during the month. The hoe should be kept going during dry weather, as weeds will begin to push through rapidly. Where cabbages and cauliflowers have been removed the beds should be heavily manured and dug up. If the land is heavy, and does not break down readily, apply a bushel of fresh quicklime (after slaking) to every five rods. These beds, after laying idle for a few weeks, may be used for early potatoes.

### FLOWER GARDEN.

Many plants may be prepared for summer flowering. Phlox Drummondii may be sown on a half-spent dung bed, being covered with a glass frame. Should there be no bed available, one may be prepared during the first week of the month by putting up a fair-sized heap of manure, and mixing it well, turning it once or twice before the bed is built. Put about 4 inches of good clean soil on top of this, place the frame over it, and allow to remain for about 10 days. By this time the temperature will be considerably lower, and the seed may be sown, putting it down thinly. Stocks (Ten-week and Intermediate), carnation, antirrhinum, gaillardias, auricula, primula (English primrose),

polianthus, pansy, and ornamental grasses, should be sown during the month. Hardy shrubs, especially herbaceous plants, should be planted. Clumps of *diletrya* (Bleeding Heart), delphinium, spireas, hellebores (Christmas rose), *Astilbe japonica*, &c., should receive immediate attention. Roses from the nurseryman or from cutting beds may be planted. When opportunity offers seeds gathered in the autumn should be cleaned ready for next month's sowing. Japanese lilies, also many of the amaryllis, may be planted in well-prepared beds. Gladioli should receive attention—Groffs, especially, as they flower much sooner than the *Gandavensis* type. Make the beds good. The *Racemosum* type of gladioli may be put out also. This is a very early flowering variety. A good sowing of sweet peas may now be made. Prepare a bed for rose-cuttings, using a light, sandy compost. The cuttings should be put in during the month. Where possible, shrubs should be layered—holbies, spireas, purple beech, daphne. Forest trees should also receive this treatment where stools are available. ●

#### GREENHOUSE.

The plants under glass will now begin to show signs of life in the form of new growth, and the most forward may be repotted in a good compost. Tuberous-rooted begonia, gloxinia, streptocarpus, and balsam for early flowering should be sown; also cyclamen, gerbera (African daisy), hibiscus, mearvillea, *Impatiens sultani*, petunia, primula, and obconica. Sow in a light, friable soil, and do not cover the seeds deeply. Cineraria and the Chinese primula should be at their best. Keep a sharp lookout for aphids on cineraria and calceolaria. Liquid manure should be given after watering with clean water. Ventilate freely in fine weather. Cyclamen ought to be very forward; be careful in applying water. Pelargoniums that were potted last month should be watched for aphids. These plants should be kept in an airy position. Rex begonias may be divided and repotted. Water carefully. During wet weather the house should be cleaned up; the leaves of palms, aspidistra, dracæna, &c., to be carefully sponged. All moss to be removed from the pots.

A soil containing too much water during the whole or a considerable part of the season should be underdrained to draw off the excessive amount of moisture. Most of our agricultural crops do better in a soil containing from 30 to 60 per cent. of the amount of water which the soil would contain if saturated. With less water, crops suffer; with more, they suffer from lack of air around their roots. Wheat may be grown very successfully, and will attain a perfectly normal development, in water culture, with its roots entirely immersed in a nutritive solution, provided the water is supplied with air at frequent intervals; but it will not grow in a stagnant, saturated soil—not because there is too much water, but because there is too little air. A soil, therefore, which contains too much water contains too little air, and part of the water should be drawn off through ditches or tile drains.—[WHITNEY.]

## TASMANIAN EGG-LAYING COMPETITION: SECOND TEST.

### The Second Season's Yields Completed.

THE Government Poultry Expert (Mr. R. J. Terry) has supplied a few notes on the recent egg-laying competitions. Poultry-breeders will find many useful suggestions in the report, which will be published *in extenso*:—

#### OBJECT OF THE COMPETITIONS.

The final result of the second Tasmanian egg-laying competition held at Springvale Gardens, New Town, is pleasant reading for myself and those interested, either directly as competitors or as generous prize donors. The competitions were inaugurated to prove whether poultry did or did not pay if all food had to be purchased and the eggs not sold for fancy prices—such as settings of eggs—but simply for consumption, or on the same lines as the general farmer or suburban poultry-keeper would dispose of his poultry products. The competitions have proved that poultry kept for egg-production return a handsome profit, even when kept in small runs, such as an ordinary back-yard could accommodate, when birds of the right strain are fed. This was a vexed question previous to the competition. Some made poultry pay, while others were not able to do so.

#### CAUSES OF FAILURE.

We know now that failures are due to two causes—either the management is faulty, or the wrong type of fowl is kept. Further, the competitions have shown that the food for egg-production comprises a great variety of grains, meals, and waste products, enabling one to take advantage of what happens to be cheapest in the immediate market, for use as a foundation or bulk food. It is the knowledge of what to use in conjunction with this bulk that ensures success. Unfortunately, I cannot at present go into full details of the competition just finished, as that information will have to first appear in the official organ or pamphlet; but I may mention that not a single grain of wheat was used during the 12 months. The full particulars of feeding, management, &c., should be interesting reading for poultry-keepers whose chief aim is eggs.

#### LESSONS LEARNED.

The second aim of the competition was to serve as a guide to would-be purchasers of eggs for settings, or stock birds, and what might be expected in the way of egg-production from certain strains. The competition also impresses upon poultry-breeders the necessity for hatching at the right time of the year for intense egg-production. Readers will have this fact brought home to them by studying the full report of monthly



returns and remarks that have been made from time to time on the egg-laying condition of the birds competing. Some birds were hatched too early for winter egg-production and went into a half or false moult just when eggs were getting dear. Other pens were not quite forward enough, although of the right age to commence laying. It should be borne in mind that a pullet lays *at a certain stage of growth* or development, not at a certain age.

#### THE OUTSTANDING PENS.

Without detracting from the interest of the pamphlet to be published later, a few brief remarks regarding the leading pens might not be out of place. Mr. F. W. Gisborne's winning pen of Black Orpingtons were somewhat small if judged by exhibition requirements, but handle heavier than they look, being close feathered, and having no excess of fluff or softness of feather. They were also fairly low and compact, with very neat fine heads, not the least heavy in appearance. They were, however, weak in colour. They did not get a very good start, only laying 23 eggs during the first four weeks of the competition; but after that they were very consistent, and they had good health throughout. When they showed signs of broodiness it was very easy to break them of it; a day, or at the most two days, out of the pen being all that was required. Some of the pullets would show slight signs of broodiness, but would continue laying. It was this lack of the broody propensity which must have materially assisted them to attain the winning position.

Mr. Olson's pen of White Leghorns, which obtained the second place, were of the same type as last year's winners, being small, close-feathered, neat, and having a bright appearance. They won the first month, and went strongly for a considerable period. Unfortunately, a death occurred, which meant a fresh bird to replace it. The pen laid 50 eggs more than the number which won for the owner last year (which, by the way, seems to point to the value of lucerne, as a larger amount was available for the second competition than for the first, when the lucerne was not thoroughly established).

Mr. W. H. Whittle's pen of White Leghorns obtained third place. The birds in this pen are of very much the same type as those gaining second place, with the exception that they are larger and carry rather more comb. The pullets in this pen started off well. They won the second month and were well up in the following months, winning the winter test for the largest number of eggs laid during the first four months of the competition.

Mr. W. T. Stephens' Silver Wyandottes were fourth. The birds in this pen were of good size and type, and very fair in markings. They had good health throughout. Four out of the six were fairly easy to break of broodiness, and the remaining two very difficult. This pen is also the winner of Mr. Keen's trophy for the pen laying the largest number of eggs, birds to be owned by competitor residing on the North-West or West Coasts.

Mr. A. G. Genders' White Wyandottes were fifth. This was a very handsome pen - good type, colour, and condition. Although not through moult the birds were second in the number of eggs laid during the last month of the competition. They were unlucky at the start through going into a slight moult. They had evidently been laying for some time before entry.

Messrs. F. Briggs and Son's R.C. Brown Leghorns were sixth. This pen consisted of smart-looking pullets, which did not make a name for themselves the first month, but have been visiting the nest-box very consistently since. They laid a fair number of eggs during moult, which they are through. As they are, in my opinion, a pen in which all the birds are in a condition to continue laying, they have been awarded the condition prize.

Mr. H. G. Spicer's pen of Buff Orpingtons are awarded the prize for eggs and show points combined.

Mr. Hale's pen of White Orpingtons gain first prize for best brown eggs. The same gentleman won this prize last year.

The most unlucky exhibitor was Mr. Wells (East Launceston Poultry Yards), whose pen of White Leghorns went into complete moult. They did not lay any eggs during the first or second, and only 29 eggs during the third, month of competition, and then finished up with, in the circumstances, the excellent total of 1057 eggs. They won three monthly prizes.



*Egg-laying Competitions: View of the Pens.*

## Second Egg-laying Test—Commenced 15th May, 1910; ended 15th May, 1911.

Name.	Address.	Breed.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	Total.
1. Gisborne, F. A. W.	Risdon-road	B.O.	23	58	162	178	163	145	119	89	110	120	67	54	1318
2. Olson, O. H.	Karoona	W.L.	81	106	119	153	160	167	122	98	95	91	59	47	1298
3. Whittle, B. H.	Launceston	W.L.	71	126	160	151	157	141	96	64	85	65	56	43	1215
4. Stephens, W. T.	Beulah	S.W.	49	109	130	154	151	131	96	62	95	103	81	52	1213
5. Genders, A. G.	Launceston	W.W.	22	60	112	160	154	123	90	80	106	92	97	74	1170
6. Briggs, F., & Son	Longford	R.C.B.L.	11	100	122	154	150	133	102	76	73	96	88	39	1144
7. Calver, C. W.	Launceston	W.L.	9	94	149	150	155	161	107	50	133	108	22	2	1140
8. Olson, O. H.	Karoona	W.L.	45	97	119	151	154	161	90	73	109	63	33	6	1101
9. Sherriff, A. ...	Hobart	W.L.	10	64	132	153	153	151	98	57	100	116	39	19	1092
10. Williams, C. R.	Fingal	W.L.	4	64	134	158	154	159	107	65	110	91	28	14	1088
11. Rust Bros. ...	Claremont	W.L.	10	90	161	142	134	151	73	56	125	81	50	12	1085
12. East Launceston Pty. Yds.	Launceston	S.C.B.L.	17	44	122	151	159	158	109	46	130	105	40	—	1081
13. Hale, W. H.	Strahan	W.O.	—	23	121	165	154	120	82	67	104	78	84	78	1076
14. East Launceston Pty. Yds.	Launceston	W.L.	—	29	153	168	163	126	119	118	118	88	60	28	1057
15. Hyland, L. S.	Mount Hicks	W.L.	12	73	119	155	161	151	93	74	106	85	20	2	1051
16. Genders, A. G.	Launceston	W.W.	10	64	147	146	137	126	92	59	108	91	57	12	1049
17. Williams, Mrs. Luke	Moonah	W.L.	7	57	150	160	143	160	85	65	118	92	9	—	1046
18. Gisborne, F. A. W.	Risdon-road	W.L.	13	46	96	156	147	162	115	62	108	61	49	3	1018
19. Taylor, H. R.	Launceston	B.O.	3	15	130	160	134	115	109	77	96	99	48	10	996
20. Hyland, L. S.	Mount Hicks	S.W.	8	18	111	163	165	139	56	81	84	79	55	31	990
21. Briggs, F., & Son	Longford	S.C.B.L.	2	44	132	161	162	160	94	28	106	64	23	—	976
22. Stephens, W. T.	Beulah	R.C.B.L.	4	50	84	151	139	136	102	52	101	97	52	3	961
23. Boatwright, C.	Smithton	W.L.	10	75	107	150	156	146	89	20	94	49	4	—	900
24. Spicer, H. G.	Stanley	B.O.	25	49	97	141	116	112	72	37	87	46	51	36	869
25. Clarke, Mrs. S. F.	Hobart	B.O.	8	21	33	150	166	146	70	78	70	47	17	17	853
26. Skidmore, W. G.	Launceston	W.L.	—	10	43	149	159	146	65	56	120	81	12	2	843
27. Thorne, J.	Waratah	O.E.G.	—	20	94	134	115	107	91	52	81	41	3	—	741
28. Whiteway Bros.	King's Meadows	W.L.	5	—	48	135	131	128	36	16	100	97	16	2	714
29. Camp, W. J.	Wynyard	W.L.	13	57	92	134	122	96	54	15	48	30	3	3	667
30. Calver, C. W.	Launceston	B.M.	2	1	21	127	146	122	69	24	97	49	3	—	661
31. Dowling, L. ...	Devonport	W.L.	—	—	44	95	140	146	56	19	84	30	withd.	rawn	614
32. Gilham, G. C.	Launceston	B.L.	3	30	63	97	128	114	57	43	50	27	withd.	rawn	614
			477	1695	9383	4734	4733	4476	2925	1860	3751	2462	1256	589	31,641

## THIRD TASMANIAN EGG-LAYING COMPETITION.

By R. J. TERRY, Poultry Expert.

**A**§ will be seen by the list, the entries for the above are very satisfactory, there being 33 pens filled. Provision was made for 34, but one pen has not arrived, the birds having gone into a moult; and their owner thinks this would seriously handicap the birds—which it would do.

Thirty-four pens were accepted this year, for the following reason:—Several competitors thought the competition might now be open to the world of poultrykeepers, and I will admit this appealed to me. Others thought that if the Tasmanian poultrybreeders could, and would, fill the pens they should be given preference. Both sides put forward good arguments; but I consider that the last word rests with me, and that I have been fair to both sides. Thirty-one pens are Tasmanian. Two are from New South Wales, and were accepted for the following reasons:—Judging by the returns at the Hawkesbury egg-laying competitions, Mr. S. Ellis' White Leghorns should be a fair sample of the better class of White Leghorns as bred on the mainland for egg-production, and the pen at present at Springvale should help to settle the question as to whether they now have better layers than we have in this State, or if it is only a question of climate. As regards the Chinese Langshans, I have heard very conflicting reports as to their abilities as layers; we know that some strains are good. The present competition should give us a very sound idea as to the real value of these birds.

The bulk of the birds entered seem an improvement on the previous competitions, especially the first one. The pullets are for the most part more forward (and of a better type, from an egg farmer's point of view) than was the case formerly; and from information received from owners of birds, many pens are either imported from the best-laying stock or bred from eggs from high-class layers. Briefly, I am informed that the pens this year contain the most fashionable blood for egg-production, so this competition should surpass the two previous ones in interest.

### A PLEASING FEATURE.

A pleasing feature of the entries, or rather those competing, was that there was only one inquiry from those entered asking what prizes were to be awarded for the third competition, showing that prizes are not the chief aim. This is gratifying; but I might mention there is every reason to suppose that the prizes will at least equal the last in value.

## A BAD FEATURE.

I received a few letters asking if Mr. "So and So" was entering; did I know if his birds were forward this season; had another party imported eggs or birds. These persons are not amongst the entries accepted, and may take this explanation. I know that the mere fact of entering birds in a competition will not reform persons; but I not only want the pick of the birds, but picked men, if the industry is to be encouraged as it should be.

## ENTRIES FOR THIRD TASMANIAN EGG-LAYING COMPETITION.

Commenced on June 1, at Springvale Gardens, New Town.

Name.	Breed.	Address.
1. F. Hart .....	White Leghorns	New Town
2. A. G. Genders .....	White Leghorns	Launceston
3. H. R. Taylor .....	Silver Wyandottes	Launceston
4. L. S. Hyland .....	White Leghorns	Mt. Hicks
5. A. G. Genders .....	White Wyandottes	Launceston
6. East Launceston Pty. Yds....	White Leghorns	Launceston
7. East Launceston Pty. Yds....	White Leghorns	Launceston
8. Williams Bros. ....	White Leghorns	Fingal
9. Briggs & Son .....	White Leghorns	Longford
10. W. T. Stephens .....	Silver Wyandottes	Beulah
11. Rust Bros. ....	White Wyandottes	Claremont
12. R. J. Sheriff .....	White Leghorns	Hagley
13. G. Gilham .....	Black Orpingtons	Launceston
14. J. J. Harvey .....	White Leghorns	Riana
15. Mrs. B. Whittle .....	White Leghorns	Launceston
16. Briggs & Son .....	R.C. Brown Leghorns	Longford
17. A. Dickenson .....	White Leghorns	South Bridgewater
18. Reid & Stride .....	White Leghorns	Liverpool-st., Hobart.
19. S. Ellis .....	White Leghorns	Botany, N.S.W.
20. W. T. Stephens .....	R.C. Black Orpingtons	Beulah
21. A. G. Genders .....	Buff Orpingtons	Launceston
22. O. H. Olson .....	White Leghorns	Karoola
23. S. Ellis .....	Black China Langshans	Botany, N.S.W.
24. E. E. Roberts .....	White Orpingtons	Franklin
25. Mr. B. Whittle .....	White Leghorns	Launceston
26. L. J. Dowling .....	White Leghorns	Devonport
27. F. A. W. Gisborne .....	Black Orpingtons	Risdon-road.
28. J. Crisp .....	White Leghorns	Launceston
29. F. A. W. Gisborne .....	White Leghorns	Risdon-road
30. W. H. Hale .....	S.C. Brown Leghorns	Strahan
31. Mrs. Luke Williams .....	White Leghorns	Moonah
32. A. Batton .....	Black Orpingtons	Launceston
33. A. E. Terry .....	White Leghorns	Sea View Hotel. Burnie

Agriculturists must be made to understand that any improvement they desire depends as much on themselves as on State aid, if not more so; that the Department is powerless without their help; that they will receive succour from the State in proportion as they themselves put forth energy and labour; and that it is only by the united efforts of all concerned that progress can be brought about.

## TREE-PLANTING IN TASMANIA.

By J. OSBORNE, JUN., Horticultural Instructor.

**W**ITH the approach of the winter season will come thoughts of planting trees (rendered necessary by the deforestation that has taken place since the advent of the first settler) that will be ornamental, useful in providing shelter for stock, and, in the not too distant future, timber for fruitcases, butterboxes, &c.

With the great increase in the production of fruit comes the need for conserving our present supplies of case-material, and providing, by judicious planting, the box timber that will be required 25 years ahead, when, should the present rate of planting orchards be maintained, Tasmanian growers will need something like 10,000,000 cases annually.

During the present season in several fruit districts some difficulty has been experienced in getting case-material in sufficient quantity to meet requirements, a fact that should set those interested thinking; for it is plain that as times goes on the scarcity will become more marked, a serious position being created. The thoughtful farmer and fruitgrower will see at once that now is the time to make an alteration in the do-nothing policy so long followed, and will no doubt look to his own interests. As a result an attempt will doubtless be made to reserve, as far as possible, the surrounding timber belts from destruction, and the planting of all bare places on his property with suitable trees will be commenced. It may be that the bare places referred to are poor in quality and stony in character, and to the average mind unfit for planting. This need not deter the farmer, for there are many trees suited to such conditions that will in the course of from 18 to 25 years provide a very useful timber. Not only will these trees provide useful material for case-making and (where thinnings are used, as may be done in from 10 to 15 years) for fencing, gates, standards for farm buildings, mining props, &c., but their presence will also ensure in a large measure protection from cold winds and frosts, and thus prevent a too rapid evaporation of moisture from the soil.

Where planting is carried out on the slopes of steep hillsides, the roots extending through the soil, have the effect of binding, as it were, the whole mass, and thus preventing the possibility of a destructive landslide.

The presence of trees on all classes of soil creates a condition that is impossible on the bare lands; the network of roots forms a huge sponge, that will, assisted by the shade from overhanging branches, retain large quantities of water for a considerable period, parting with it slowly, and keeping rivulets, creeks, and streams well supplied during ordinary seasons.

In the open country after a heavy fall of rain the streams are quickly flooded, and as quickly subside when the storm has passed by, very little

being absorbed by the soil. That little is soon lost, being evaporated by high winds or the fierce rays of the sun. These conditions create loss to the cultivator, as there is no shelter from the rays of the sun in summer nor protection from the cold winds of winter.

Only when every acre is well employed can it be said that the farm or orchard is fully profitable. The poor soils, if covered with trees, may fulfil a three fold purpose: they will form a breakwind to the surrounding country, increasing the crops; their roots in the soil, assisted by shade, do much to admit moisture that may percolate to lower levels for use in the summer; and they provide after a lapse of years a crop that may be of great value.

In many instances it has been shown that trees may exist and make profitable growth on land too poor to support other crops. The growth is slow for the first year or two, but as the soil becomes shaded, the roots push more rapidly, and a stronger growth is made, which becomes more and more noticeable as the roots reach the lower stratas, where moisture that has filtered through from the surface is met with.

On the farm, and near the orchard in nearly every case, are odd corners, to say nothing of fence-rows, that should be used for tree-planting, and in numberless cases there are areas unoccupied that could be put to profitable use. Even large fields may have small reserves set out with clusters of health-giving conifers, adding largely to the value of the farm, and at the same time beautifying the landscape.

The farmer in the past has complained that, owing to want of knowledge of varieties suitable to plant in the different situations, many mistakes have been made. In order to get over this objection, lists of trees for planting in each district have been prepared. The lists, which include varieties useful for decoration, shelter, and timber purposes, are as follow:—

#### NORTHERN DISTRICT.

##### TIMBER TREES.

##### *Hillsides and Mountains.*

##### Conifers.

- Larch (*Larix europæa*).
- Silver Fir (*Abies pectinata*).
- Corsican Pine (*Pinus laricio*).
- Mountain White Pine (*Pinus monticola*).

##### *Lowlands and Gullies.*

##### Conifers.

- Douglas Fir (Oregon Pine) (*Pseudotsuga taxifolia*).
- Bentham's Pine (*Pinus benthamiana*).
- Weymouth Pine (*Pinus strobus*).

##### ORNAMENTAL TREES.

- Douglas Fir (Oregon Pine) (*Pseudotsuga taxifolia*).
- Caucasian Silver Fir (*Abies nordmanniana*).
- Spanish Fir (*Abies pinsapo*).
- Great Silver Fir (*Abies grandis*).

Noble Silver Fir (*Abies nobilis*).  
 Lovely Silver Fir (*Abies amabilis*).  
 Menzie's Spruce (*Picea sitchensis*).  
 Canary Pine (*Pinus canariensis*).  
 Lofty or Bhotan Pino (*Pinus excelsa*).  
 Aleppo Pine (*Pinus halepensis*).  
 Monterey Pine (*Pinus radiata*).  
 Bishop Pine (*Pinus muricata*).  
 Sabine's Pine (*Pinus sabiniana*).  
 Weymouth Pine (*Pinus strobus*).  
 Cluster Pine (*Pinus pinaster*).  
 White Cedar (*Libocedrus decurrens*).  
 Norfolk Island Pine (*Araucaria excelsa*).  
 Monkey Puzzle (*Araucaria imbricata*).  
 Cunningham's Pine (*Araucaria cunninghami*).  
 Bunya Bunya (*Araucaria bidwillii*).  
 Goven's Cypress (*Cupressus goveniana*).  
 Himalayan Cypress (*Cupressus torulosa*).  
 Lambert's Cypress (*Cupressus lambertiana*).  
 Monterey Cypress (*Cupressus macrocarpa*).  
 Japanese Cedar (*Cryptomeria elegans*).

#### *Deciduous Trees.*

Sycamore (*Acer pseudo platanus*).  
 Maple (*Acer campestre*).  
 Maple (*Acer rubrum*).  
 Maple (*Acer platanoides*).  
 English Ash (*Fraxinus excelsior*).  
 American Ash (*Fraxinus americana*).  
 Birch (*Betula alba*).  
 Beech (*Fagus sylvatica*).  
 Purple Beech (*Fagus sylvatica purpurea*).  
 Hardy Catalpa (*Catalpa speciosa*).  
 Horse Chestnut (*Aesculus hippocastanum*).  
 Spanish Chestnut (*Castanea vesca*).  
 Elms of sorts.  
 Oaks of sorts.  
 Walnuts of sorts.  
 Poplars of sorts.  
 Willow (*Salix*).  
 Plane (*Platanus orientalis*).  
 Plane (*Platanus occidentalis*).  
*Paulownia imperialis*.

The Walnut and *Paulownia* require shelter from cold winds and frosts.

### SOUTHERN DISTRICT.

#### TIMBER TREES.

##### *Hillsides and Mountains.*

##### Conifers.

Larch (*Larix europæa*).  
 Silver Fir (*Abies pectinata*).  
 Corsican Pine (*Pinus laricio*).  
 Mountain White Pine (*Pinus monticola*).  
 Norway Spruce (*Picea excelsa*).



*Lowlands and Gullies.*

## Conifers.

- Douglas Fir (Oregon Pine) (*Pseudotsuga taxifolia*).  
 Bentham's Pine (*Pinus benthamiana*).  
 Weymouth Pine (*Pinus strobus*).

## ORNAMENTAL TREES.

- Douglas Fir (Oregon Pine) (*Pseudotsuga taxifolia*).  
 Caucasian Silver Fir (*Abies nordmanniana*).  
 Spanish Fir (*Abies pinsapo*).  
 Great Silver Fir (*Abies grandis*).  
 Noble Silver Fir (*Abies nobilis*).  
 Lovely Silver Fir (*Abies amabilis*).  
 Morinda Spruce (*Picea morinda*).  
 Menzie's Spruce (*Picea sitchensis*).  
 Canary Pine (*Pinus canariensis*).  
 Lofty or Bhotan Pine (*Pinus excelsa*).  
 Aleppo Pine (*Pinus halepensis*).  
 Monterey Pine (*Pinus radiata*).  
 Bishop Pine (*Pinus muricata*).  
 Sabine's Pine (*Pinus sabiniana*).  
 Weymouth Pine (*Pinus strobus*).  
 Cluster Pine (*Pinus pinaster*).  
 White Cedar (*Libocedrus decurrens*).  
 Norfolk Island Pine (*Araucaria excelsa*).  
 Monkey Puzzle, Chilian Pine (*Araucaria imbricata*).  
 Bunya Bunya (*Araucaria bidwilli*).  
 Cunningham's Pine (*Cunninghami*).  
 Goven's Cypress (*Cupressus goveniana*).  
 Himalayan Cypress (*Cupressus torulosa*).  
 Lambert's Cypress (*Cupressus lambertiana*).  
 Monterey Cypress (*Cupressus macrocarpa*).  
 Japanese Cedar (*Cryptomeria elegans*).

*Deciduous Trees.*

- Sycamore (*Acer pseudo platanus*).  
 Maple (*Acer campestre*).  
 Maple (*Acer rubrum*).  
 Maple (*Acer platanoides*).  
 English Ash (*Fraxinus excelsior*).  
 American Ash (*Fraxinus americana*).  
 Birch (*Betula alba*).  
 Beech (*Fagus sylvatica*).  
 Purple Beech (*Fagus sylvatica purpurea*).  
 Hardy Catalpa (*Catalpa speciosa*).  
 Horse Chestnut (*Aesculus hippocastanum*).  
 Spanish Chestnut (*Castanea vesca*).  
 Elms of sorts.  
 Oaks of sorts.  
 Walnuts of sorts.  
 Poplars of sorts.  
 Willow (*Salix*).  
 Plane (*Platanus orientalis*).  
 Plane (*Platanus occidentalis*).  
 Paulownia *imperialis*.

## BOARDS OF AGRICULTURE.

THE following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	G. Pratt	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Channel	W. Baldwin	Woodbridge
Cressy	James Anderson	Cressy
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
East Tamar	W. Carnie	Newnham
Elliott	L. H. Shepherd	Elliott
Fingal	F. M. Lattin	Fingal
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Geeveston	F. Hyndes	Geeveston
Glengarry	W. Wheldon	Glengarry
Glen Huon	P. H. Young	Glen Huon
Glenorchy	Hon. W. Clifford	Glenorchy
Harford	Geo. Sykes	Harford
Irish Town	E. L. Smith	Irish Town
Kimberley	H. Britton	Kimberley
Kettering	F. Hawker	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
King Island	A. Bertram	King Island
Leslie	R. C. Reid	Fern Tree
Lilydale	S. Wellington	Lilydale
Lymington South	T. Burnaby	Lymington
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marrawah	E. Bonhôte	Marrawah
Montagu	R. Ennis	Montagu
Meander	H. Evans	Meander
Mt. Seymour	W. Wilson	Mt. Seymour
Mowbray	G. H. Boatwright	Smithton
Mooreville-road	W. White	C/o W. Spinks, Mooreville-road
New Ground	A. H. Douglas	Moriarty
New Norfolk	B. R. Reynolds	New Norfolk
North Motton	O. Waters	North Motton
Nook	M. McInnes	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgley	W. Morris	Ridgley
Scottsdale	F. F. Tucker	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
Sheffield	O. Ridley	Sheffield
South Preston	R. G. Allison	South Preston
St. Helens	C. R. Bowling	St. Helens
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carins	Myrtle Bank
Sprent	A. Lee	Sprent

## BOARDS OF AGRICULTURE continued.

BOARD.	HON. SECRETARY.	ADDRESS.
Staverton	T. Wootton	Staverton
Stoodley	J. Leo	Stoodley
Stowport	J. G. Pearson	Round Hill, Burnie
South Springfield	J. Molphy	South Springfield
Table Cape	H. J. Smith	Wynyard
Tyenna	F. M. Smith	Tyenna
Ulverstone	H. A. Nichols	Ulverstone
Upper Mountain River	A. Griffiths	Grove
Wattle Grove	K. Lord	Wattle Grove (Lower)
West Tamar	H. Robinson	Frankford
Wilmot	D. E. Forbes	Wilmot
Yolla	D. T. Jones	Yolla

## Avoca, May 3.

**PRESENT.**—Messrs. J. Conway (Chairman), F. Malkin, J. Parker, C. Shelton, N. Stanley, A. T. Rubenach, J. Macarthy, and G. Pratt (Hon. Secretary).

**DATE OF MEETING.**—The Secretary reported that some members had suggested that the date of the usual monthly meeting should be altered. It was resolved, on the motion of Mr. Shelton, that the day of meeting remain unchanged.

**PROHIBITED WEED.**—The Chairman drew members' attention to the existence in the district of the weed called hemlock, or a plant resembling it. The Secretary was directed to forward a sample of the weed to the Director for inspection and report.

## Barrington, May 13.

**PRESENT.**—Messrs. A. Rolles (Chairman), A. Morey, J. A. Moore, C. Packett, J. Cocker, and A. E. Moore (Hon. Secretary).

**DELEGATES.**—Messrs. A. E. Moore, A. Morey, and D. Russell were chosen to represent the Board at Launceston conference.

**SEEDS.**—The seeds sent by the Department for experimental purposes, for which a vote of thanks was passed, were entrusted to Messrs. Cocker and Packett, who were requested to furnish the Board with a report on the result of their experiments.

**SIRES.**—The following resolution moved by Mr. A. Morey was carried:—“That the Director include in the list of subjects to be discussed at the conference a proposal that to be eligible for public service horses should carry a Government veterinary certificate that they are free from hereditary unsoundness.”

**BLACKBERRIES.**—Resolved, on the motion of Mr. C. Packett, “That owing to the spread of blackberries and the great depreciation in value of land so affected, the Department of Agriculture should acquire a plot of land and demonstrate the practicability of eradicating this pest and at the same time make the farm pay its way.”

**BULLS.**—The purchase of bulls by the Devonport Council was approved.

## Beulah, May 19.

**PRESENT.**—Messrs. E. Hodgkinson (Chairman), F. Duncan, C. Kelly, E. Best, V. Richardson, J. Murphy, and W. T. Stephens.

**RULES.**—It was resolved to amend Rule 2 so that, instead of being proposed by a member, any person paying the fee of 2s. be a member. It was also agreed that the Board year should commence in November and expire in October; meetings to be held on the Friday night nearest the full moon.

**POTATO-CUTTING.**—Members were of opinion that the best method was to cut with two eyes on each set on the day previous to planting, and to brine the sets as cut.

**AGRICULTURAL FARM.**—Approval was expressed as to a State farm being established, provided it is situated in Northern Tasmania. It was considered the north was agriculturally the best part of the island. On the motion of Mr. Best it was decided that the site of the farm be discussed at the Launceston conference, and that the Secretary write to the Director to that effect.

**DELEGATE.**—Mr. Best was elected to represent the Board.

**FREIGHTS.**—Mr. Best brought under the notice of the Board what he considered to be the very unfair charges made by the Railway Department on goods from Launceston. The charge on kerosene, soap, and salt to Kimberley was 30s., and to Railton (a distance of 6 miles further) 26s. 3d. For a set of stove grates weighing 22 lb. the freight was 2s. 6d., as compared with 2s. for a chain weighing 58 lb. For the carriage of two boxes of cartridges to Kimberley 2s. 9d. was charged, whereas the fee for four boxes to Railton was only 2s. 6d. Further, 1s. 6d. was charged for taking a cask of beer to Burnie, whilst for the carriage of a cask of vinegar to Kimberley 4s. was paid. Why such a difference in freights existed members were at a loss to understand. It was agreed that the sooner the new Commissioner of Railways took up his duties and looked into the matter the better it would be for the agricultural community.

**DODDER.**—After discussion it was decided to write to the Department in regard to this pest. [Fream says: "Dodder is a parasitic flowering plant allied to the bindweed. Its seeds germinate in the ground, and, in the case of the clover dodder, the young shoot, coming in contact with the stem of a clover plant, develops *sucking roots or haustoria*. As growth progresses the dodder produces more haustoria, with the result that it becomes entirely parasitic upon the clover plant, and, whilst it appropriates the nutriment which the clover had elaborated for its own growth, it gradually strangles its 'host.' This unequal struggle terminates in the death of the clover plant, and sometimes in a clover field numbers of bare patches may be seen where the clover has been destroyed by dodder. In such cases the clover should be fed off by sheep at once, the field should be ploughed up, and clover should not be grown again upon the same land for a number of years, in order that the dodder seed in the soil may have time to die. Clover seed should always be examined, and if it contains any of the small brownish wrinkled seeds of dodder, it should on no account be sown. Clover dodder has a yellowish-pink straggling stem with no leaves, and with numerous clusters of small flowers. The plant grows in the fashion of a heap, the narrow stems alone being exposed to outward view, and the clusters of flowers turned towards the ground. Pulled away by hand the mass is felt to be rather sticky. The plant has a faint aromatic odour. Other species of dodder attack the flax, and some are parasitic upon the stinging-nettle."—Ed.]

### Carnarvon, May 13.

**PRESENT.**—Messrs. Tanner (Chairman), G. Eldridge, R. J. Stacey, W. R. McGinniss, J. McArthur, G. Wellard, J. A. McGinniss, E. A. Target, and D. B. Blackwood (Hon. Secretary).

**NEW MEMBERS.**—Messrs. J. P. Mathias and A. C. Mathias.

**DAIRYING.**—Correspondence was read from Director of Agriculture re licensing of dairies, stating that all dairies must be licensed, and also supplying several forms.

**CONFERENCE.**—A memo. was read from Director giving notice of conference of Boards of Agriculture to be held at Launceston, and asking the Board to send a delegate. Mr. Tanner was appointed as delegate, and on the

motion of Mr. D. Blackwood it was decided that the Secretary write to H.C.P. Company, asking for free ticket for delegate from Taranna to Hobart.

**AGENDA-PAPER FOR CONFERENCE.**—The evening was taken up in discussing the items on the agenda-paper for the conference, in order that the delegate might know the general opinion of the Board on the items to be discussed at the conference. On the proposal of Mr. Stacey it was decided that the following be added to the agenda-paper (if time permitted):—"That the Government should initiate an export department."

#### Cressy, May 16.

**PRESENT.**—Messrs. H. T. Hingston (Chairman), S. Brumby, G. Gill, J. Shipp, H. Wilson, and J. Anderson (Hon. Secretary).

**REPORT.**—Messrs. S. Brumby and G. Gill gave a detailed account of the recent conference at Deloraine, and regret was expressed that the attendance had been so small. Mr. H. Hingston regarded the report as satisfactory, and moved a vote of thanks to the delegates for their attendance.

**CONFERENCE.**—A circular was read from the Director of Agriculture *in re* the conference to be held in Launceston. Messrs. H. T. Hingston, S. Brumby, G. Gill, and J. Shipp were appointed to represent the Board at the conference.

#### Frankford, May 13.

**PRESENT.**—Messrs. C. I. Knight, J. J. Towers, G. G. Rossiter, W. Cox, W. Lee, J. Lee, — Thomas, W. Gowans, and M. de H. Ponsonby (Hon. Secretary).

**DELEGATE.**—Mr. Knight was appointed to represent the Board at the conference in Launceston.

**POTATO BLIGHT.**—Mr. Knight's resolutions dealing with potato blight were submitted to the meeting, and after discussion it was decided that they be sent to the Department for discussion at the Launceston conference. After considerable discussion it was decided that, as the Irish blight is now common throughout Tasmania, potatoes offered for sale in this State should be sold on their merits.

#### Kettering, May 5.

**PRESENT.**—Messrs. W. C. Blythe, W. Sweeney, R. Creighton, W. Ims, W. J. Baldwin, and F. Hawker (Hon. Secretary).

**CHAIRMAN.**—Mr. Blythe was voted to the chair.

**POTATO CONFERENCE.**—The Secretary read a letter from Hon. H. A. Nichols convening a meeting of delegates from Boards of Agriculture to discuss matters of interest to potatogrowers. As potatoes are largely grown in this district, it was considered necessary that the Board should be represented at the proposed conference.

**LAUNCESTON CONFERENCE.**—A letter was read from the Department of Agriculture *re* the Board conference at Launceston. Mr. Creighton was appointed as delegate, and he was instructed to endeavour to get the rate on young orchards removed, or at least altered to be made applicable only to trees that are five years old. Members also trusted that he would impress upon the Government the necessity for providing a fruit and export department to assist growers.

**RAIN-GAUGE.**—This subject was discussed, and members eventually decided that the gauge was the property of the Federal Government.

**ACCOUNTS.**—It was resolved that the Secretary go through the Board's accounts with the Treasurer.

#### Kindred, May 8.

**PRESENT.**—Messrs. W. Polden, Sen., H. Vertigan, N. Loane, G. Medwin, J. J. Filluel, A. Mott, G. Weindorfer, H. Arnold, D. G. Cowle, A. Polden, and C. C. Polden (Hon. Secretary).

**NEW MEMBERS.**—L. Vertigan, L. Howard, S. Vertigan, T. D. Lewis, N. Vertigan, I. Howard, F. Turner, and W. Russell.

**DELEGATE TO LAUNCESTON CONFERENCE.—Mr. C. C. Polden.**

**SPRAYING POTATOES.**—A long discussion took place on this subject. Members were of opinion that there is need for further trials to prove the efficacy of spraying. If proved by experience to be as beneficial as its advocates claim, there will be no need to make spraying compulsory. On the motion of Mr. Weindorfer it was resolved, "That the delegate to the conference at Launceston ask the Department of Agriculture to supply the different Boards situated in the potato-growing centres with up-to-date spraying machines."

**Lymington, May 3.**

**PRESENT.**—Messrs. J. Parnham (Chairman), P. Cranny, E. B. Cross, S. Cross, H. E. Batge, F. Stanton, and T. Burnaby (Hon. Secretary).

**TREES.**—On the motion of Mr. Cranney it was resolved that the Secretary apply to the Department for a supply of young trees, it being understood that the Department has a number available for distribution.

**BITTER PIT.**—The Chairman's paper on "Bitter Pit" was held over till next meeting.

**Marrawah, May 10.**

**PRESENT.**—Messrs. G. Thompson (Chairman), G. Moore, Fitzpatrick, A. Wilson, T. Marshall, G. Mahood, and E. Bonhote (Hon. Secretary).

**MILKING COMPETITION.**—Resolved, "That a medal and certificate be given to Mr. W. W. Ford, the owner of the winning cow; also that the cow be entered for the competition in his name."

**CEMETERY AND RECREATION GROUND.**—On the proposal of Mr. Bonhote it was decided that Councillor Thompson be asked to make enquiries at next municipal council meeting in regard to a cemetery and recreation ground for Marrawah. The site (over Doctor's Creek) chosen by the committee appointed at a previous meeting was favourably reported upon.

**QUORUM.**—It was decided that in the future three, instead of five, should form a quorum.

**DELEGATES TO CONFERENCE AT LAUNCESTON.**—Messrs. Thompson and G. Moore.

**DAIRY REGULATIONS.**—The following resolution, moved by Mr. Thompson, was carried:—"That delegates bring before the conference the desirability of altering Article 7 of the dairy produce regulations to read, 'That they be allowed to be removed from the factory in the same vessel that is used for the carriage of milk, provided the whey has been pasteurised'; also the desirability of altering Rule 10, so that new settlers may be given three years in which to comply with the said regulation."

**Mooreville Road, April 10 and May 15.**

*April 10.*

**PRESENT.**—Messrs. W. Spinks (Chairman), W. Reid, R. Laird, A. J. Spinks, G. Russell, A. Pease, T. Atkinson, W. White, and J. M. Douglas (Hon. Secretary).

**OFFICERS.**—The following officers were appointed:—Chairman, Mr. W. Spinks; Secretary, Mr. W. White, *vice* Mr. J. M. Douglas, resigned. The lastnamed gentleman was accorded a hearty vote of thanks for his services to the Board.

*May 15.*

**PRESENT.**—Messrs. W. Spinks (Chairman), J. M. Douglas, T. Redman, A. J. Spinks, J. Connolly, A. Pease, G. Russell, J. Dodd, L. C. Russell, W. Russell, and W. H. White (Hon. Secretary).

**DELEGATE TO LAUNCESTON CONFERENCE.**—Mr. R. Laird; and the following as members:—Messrs. W. Spinks, G. Russell, and A. J. Spinks.

**STATE AGRICULTURAL FARM.**—This subject, adjourned from a previous meeting, was discussed. Members favoured the proposal.

**NEW MEMBERS.**—Messrs. L. C. Russell, J. Dodd, and W. Russell.

### New Ground, May 17.

**PRESENT.**—Messrs. G. Parsons, T. Addison, C. Ingram, J. Thomas, J. Richards, L. Douglas, and A. Douglas.

**OFFICERS.**—Chairman, Mr. G. Parsons; Secretary, Mr. J. Thomas.

**DELEGATE TO LAUNCESTON CONFERENCE.**—Mr. T. Addison. It was resolved that the following proposal be submitted to the conference:—"That samples of all imported manures be taken, as they are landed, by the local inspectors, and that the analysis and value be published in the 'Gazette'; also that locally-mixed manures should bear a tag guaranteeing their analysis."

### Nook.

**PRESENT.**—Messrs. G. Hamilton, H. Keep, Jun., J. Aitken, J. Shay, J. Lyons, and M. McInnes (Hon. Secretary).

**DELEGATE.**—Mr. J. Shay was appointed delegate to the Launceston conference.

### Railton, May 22.

**PRESENT.**—Messrs. H. Priest (Chairman), P. H. White, W. D. Tune, and J. Blenkhorn (Hon. Secretary).

**CONFERENCE.**—The Chairman and Secretary gave in their report of the Sheffield conference. The Chairman stated that it was more of a political meeting than an agricultural conference, and he was very much disappointed with it. The delegates did not have an opportunity of discussing any business with the Director. The meeting did not begin till about 10 p.m., after Mr. L. Atkinson's address, and at the finish of the conference it was nearly 12 p.m. The farmers seemed tired of it, and took very little interest in the subjects brought up. It was nearly 1 in the morning when he got home. The Secretary said he brought up the growing of flax for the Belfast market, but owing to the lateness of the meeting sufficient interest could not be worked up.

**FODDER.**—Mr. Tune brought forward a new fodder plant that had a very rapid growth in New Zealand. It was agreed to try to get particulars of it from the Department in Hobart.

**DELEGATES.**—Mr. P. H. White was proposed as a delegate to the Launceston Agricultural Conference, and Mr. H. Priest was also asked to attend, so as to have the Board well represented. Mr. White was instructed to bring under the notice of the conference three subjects of great interest at the present time—(1) the starting of the flax industry in Tasmania; (2) that no young orchards be taxed until they come into bearing; (3) that the Department of Agriculture be asked to run the Immigration Bureau, and that the Boards in the country districts supply all the information available to the new settlers. Lots of farmers were anxious to sell out, and a list of farms and the price per acre could be supplied by the bureau.

**FLAX.**—The Secretary was instructed to forward a sample of Tasmanian flax to Messrs. Miller and Co., Melbourne, and get full particulars as to price, &c., and how much they could take.

**DAIRYING.**—Owing to the potato disease in the district it was suggested that the dairying business ought to be pushed along. The Secretary suggested that a butter factory ought to be built at Railton, where land was cheap and plenty of good water could be obtained. Members did not see how they could start a factory here. Lots of farmers were going in for small separators for each farm, and sending their cream to the coast factories and Launceston. As Railton was a good centre, the Secretary thought a butter factory would be a success. Support might be got from the Sheffield district.

**SUBSCRIPTION.**—The subscription for the year was fixed at 1s. per member.

**Riana.**

**PRESENT.**—Messrs. Groom, King, Fielding, Clarke, Rosethorn, Clarke, Hynes, Fraser, P. McHugh, A. Clarke, and A. Oliver (Hon. Secretary).

**CHAIRMAN.**—Mr. T. Hynes was voted to the chair.

**DELEGATE TO LAUNCESTON CONFERENCE.**—Mr. J. McHugh; emergency, Mr. C. Groom.

**Ridgley, May 15 and 22.***May 15.*

**PRESENT.**—Messrs. J. F. Crawford (Chairman), G. Jubb, B. Gant, H. Morris, R. Hilder, W. Burley, J. Moore, J. Hancox, M. Bramich, and W. Morris (Hon. Secretary).

**FORESTRY.**—The subject of tree-planting was introduced by the Secretary, and was favourably received. The Secretary intimated that he was expecting some information from the Department in connection with tree-planting and the growing of pines from seed.

**CONFERENCE.**—The agenda-sheet of the Launceston conference was taken into consideration, "How Best to Improve the Dairying Industry" being the first item taken. A long and interesting discussion ensued, in which Mr. Benson's scheme for the importation of dairy heifers from Victoria met with a good deal of support. It was pointed out in this connection that culling by the owners of herds and the careful selection of sires were the best means of improving the herds, while proper feeding played an important part in the returns. It was agreed that in the event of a dairyman procuring heifers from Victoria culling and breeding would have to be carried on just as much or more than before, otherwise the imported stock would be wasted.

**DELEGATE TO LAUNCESTON CONFERENCE.**—Mr. W. Morris.

*May 22.*

**PRESENT.**—Messrs. H. Morris (Chairman *pro tem.*), G. Jubb, J. Moore, R. Hilder, M. Bramich, T. Burley, W. Burley, W. Townsend, W. Docking, and W. Morris (Hon. Secretary).

**FORESTRY.**—Before commencing with the business proper the Secretary read a letter from Mr. Evans giving details of the manner of growing pines from seed; also, quotations were read from a book dealing with the subject which was sent by Mr. Evans.

**DAIRYING.**—The debate on the dairying industry was resumed. Mr. Jubb spoke in favour of importing yearling bulls instead of heifers, as proposed by Mr. Benson in his scheme. In supporting his argument the speaker said that without good bulls the stock of imported or any good cows would immediately degenerate. This, he said, was a serious matter in Tasmania, and demanded attention. Members speaking in opposition said that the heifers imported would be in calf to pure bulls, and good sires would in that way be procured cheaper than by importing them; also, a quicker start towards improvement would be effected by the importation of heifers, as they would be in milk at once, and their stock would be here immediately; whereas with the bulls it would be three or four years before they proved their worth. Mr. Jubb asked, "What bulls would be used until the Victorian calves grew up?" The following resolution moved by Messrs. Hilder and Burley was carried:—"That this meeting is in favour of Mr. Benson's scheme, but would like to see added the importation of yearling bulls as well."

**THE POTATO INDUSTRY.**—The Secretary urged that the inspection at home markets for local consumption was absurd. Irish blight was to be found everywhere in Tasmania, and if the potatoes were fit for use they should be sold for what they were worth. Potatoes that are carted into Burnie and hawked from shop to shop or house to house are not inspected; but if those potatoes were sent to Hobart or Zeehan they would be subjected to a rigid inspection,



and if a few blighty ones were found they would have to be picked over. Mr. Hilder urged that the inspection laws had been a blessing in disguise, and but for them very few, if any, tubers would have been sent away. After a good debate the following resolution moved by Messrs. Hilder and Burley was carried:—"That dual inspection be discontinued; that a Commonwealth or Federal inspector to be at the port of exit; and that all potatoes be sold for what they are worth on reaching destination." After further discussion Messrs. H. Morris and J. Moore moved the following motion, which was carried:—"That as a preventive for Irish blight spraying be recommended; also the importation of new, clean seed from anywhere obtainable."

### Ringarooma, May 12 and 22.

*May 12.*

**PRESENT.**—The Chairman (Mr. W. H. Phillips), S. B. Phillips, A. H. Edwards, S. F. O. Diprose, R. Thompson, C. Krushka, W. J. White, and the Secretary (Mr. L. G. Collins).

**CORRESPONDENCE.**—A letter from the Director was read inviting the Board to be represented at a conference to be held at Scottsdale on May 23, and to meet the Director on the 22nd at Ringarooma; also another from the Director asking the Board to be represented at a conference to be held in Launceston on June 15 and 16. It was resolved that the Chairman be appointed to represent the Board at Scottsdale and the Secretary at Launceston.

**ELECTION OF OFFICERS.**—The retiring Chairman and Secretary were re-elected.

*May 22.*

A special meeting of the Board was held on above date to welcome the Director of Agriculture and Agricultural Organiser (Messrs. Benson and Evans).

**PRESENT.**—Messrs. W. H. Phillips (Chairman), C. Krushka, A. H. Edwards, S. F. O. Diprose, J. C. Cox, W. Freeman, W. Thompson, S. B. Phillips, and the Secretary (Mr. L. J. Collins).

**VISITORS.**—Messrs. A. Peardon and R. W. Jones.

**ADDRESS.**—The Director addressed the meeting on the quarantine laws, the treatment of potatoes for Irish blight, organisation of farmers, and the dairy industry. The discussion then became general. The meeting closed with a vote of thanks to the visitors.

### Sheffield, May 11.

**PRESENT.**—Messrs. W. R. Jones, W. York, I. Tyler, J. Austin, J. Hoare, J. Martin, E. Strawberry, W. J. Hope, H. Smith, J. York, G. Lord, T. A. Wyatt, J. L. Morris, T. Cruickshank, and O. Ridley.

**OFFICERS.**—Chairman and Treasurer, Mr. W. York; Secretary, Mr. O. Ridley.

**SUBSCRIPTION.**—The annual subscription was fixed at 2s. per annum, payable in advance.

**CONFERENCE.**—The Secretary tabled the programme of the agricultural conference to be held in Launceston.

**BLACKBERRIES.**—It was resolved to suggest that the eradication of the blackberry pest should be added to the programme should there be time for discussing this important matter at the conference.

**DELEGATE TO LAUNCESTON CONFERENCE.**—Mr. O. Ridley.

**PAPER.**—Mr. H. Smith agreed to prepare and read a paper on the "Eradication of the Blackberry Pest" at the June meeting of the Board.

**MEETINGS.**—Monday nearest the full moon was fixed as the day of meeting. Satisfaction was expressed at the formation of the Board. It is anticipated that the meetings of members will have an educational influence, and that a distinct advantage will be gained through having official recognition by the Department.

## St. Marys, May 20.

**PRESENT.**—Messrs. F. Napier (Chairman), P. Becker, J. Lohrey, J. McDermott, W. King, J. Speers, F. Salter, Dr. Harrison, and Col. W. V. Legge (Hon. Secretary).

**VISITORS.**—The Director of Agriculture (Mr. Benson) and the Organising Secretary (Mr. L. A. Evans). Mr. Benson was cordially welcomed to the meeting on the motion of the Chairman, who alluded to the good work he was doing in the cause of agriculture by visiting the Branch Boards and farmers generally throughout the State. The Secretary mentioned the pleasure it gave him to bring Mr. Benson to the meeting after his conference (at Fingal) on the previous evening with the members of the Branch Boards. Members cordially responded to the Chairman's welcome. Mr. Benson, in thanking the members of the Board for their welcome, said it gave him much pleasure to be in the district for the first time, and that he looked forward to seeing more of it and becoming acquainted with its agriculturists before very long.

**VETERINARY.**—"Note" on Dr. Willmot's researches at the Campbell Town laboratory into the obscure disease affecting cattle, sheep, &c. Dr. Harrison, before dealing with the crux of the subject in hand, spoke of the importance to farmers of the literature that had been issued by the Department from the pen of Dr. Willmot. The researches of the Government Veterinary Surgeon at the new laboratory at Campbell Town had thrown much light on the diseases which disastrously affected stock in Tasmania, and he hoped the pamphlets published would be more widely circulated in the future. The country was fortunate in having such a man as Dr. Willmot, who as bacteriologist was doing much good. Though he did not depend on his official work for his support, it was, all the same, unfair that other scientific workers on the mainland should take credit to themselves for discoveries which Dr. Willmot had made at Campbell Town in connection with the cattle disease. Dr. Harrison then dealt exhaustively with the subject from a technical point of view, his remarks embracing the following chief points:—

- (1) The necessity for emphasising the fact that Dr. Willmot was the **first** to demonstrate the presence of true braxy in Tasmania.
- (2) The importance of this discovery, in that it enables the same preventive measures to be taken which have proved so effective in England and Scotland.
- (3) The supposition that the disease was a new one, called "malignant exudation," as described by Prof. Gibruth, would have diverted attention from the only reliable means of prevention.
- (4) The recognition by Dr. Willmot of the mainland cattle disease as the "louping-ill"—the first time it has been demonstrated bacteriologically.
- (5) The identification of "the stiffs" in sheep with louping-ill.
- (6) The necessity for farmers heartily co-operating with Dr. Willmot, and carefully noting for his information the period of the year within which these various diseases occur, so that during the "off season" protective drenching may be employed.

Dr. Harrison then moved a motion on which a general discussion took place. Before the motion was put, however, Mr. Benson rose, and asked leave to speak, as he could throw new light on the matter. The Director said that owing to recent events at Home some important points, about which there had been much doubt, would probably be elucidated. He referred to the well-known researches of the eminent Scotch bacteriologist, Dr. Hamilton. Since his death valuable notes on these diseases had been found among his papers, and he understood it was the intention to publish the subject-matter before long, in which case valuable light would be thrown on the treatment of braxy and kindred diseases by prophylactics; and until the information looked

forward to had been published it would not be wise to proceed with further experiments. It was possible that an animal might be cured by the administering of a prophylactic for one disease and afterwards get another. Dr. Harrison then withdrew his motion, and moved the following, which was carried unanimously:—"That, considering the importance of Dr. Willmot's discovery of braxy in sheep and louping-ill in sheep and cattle, and the heavy losses to stockowners from these diseases, the Government should take steps to supply—at a reasonable price—from the veterinary laboratory at Campbell Town the protective drenches recommended by Dr. Willmot, and should make the fact that they are available as widely known as possible." Mr. Salter spoke of the so-called "coast" disease in cattle, which was sometimes troublesome in this district, and in the discussion that followed it was shown that this was a different form of malady, accompanied by stiffness in the legs and arching of the back, and was not necessarily fatal. The Secretary alluded to its having been common for years in the Cape Portland district, where it was supposed to be caused, if cattle were kept there for more than two years at a time, by the marshy, undrained coastal runs. Dr. Harrison thought the "coast" disease might be a form of louping-ill. The Director stated that he had testimony of it in King Island where it accrued from malnutrition!

**DIRECTOR'S ADDRESS.**—The Secretary suggested that Mr. Benson might be willing to give members the benefit of his interesting address to the farmers at Fingal on the previous evening, and on the cordial invitation of the Chairman Mr. Benson spoke at some length on his desire to see more Branch Boards formed by the Organising Secretary. It would give him more opportunity to come in touch with the farmers of the State, and would tend to advance the agricultural industry. He dealt with the question of quarantine, and said he desired to see the regulations relaxed as far as pure dairy cattle were concerned. He saw no danger in this, as the treatment of pleuro. was much better known now, and it could be kept within bounds. He did not desire to see any but pure stock imported, and it must be from clean districts and with a certificate that the herd was absolutely clean. With regard to the potato disease, that had come to stay. Farmers need not be alarmed to any great extent. Spraying would keep it down, as was the case in England and Ireland; and seed should be cut so that nothing diseased could find its way into the ground. They must change the crop too.

**CONFERENCE.**—Col. W. V. Legge was nominated as delegate to the forthcoming conference at Launceston.

### South Preston, February 20 and May 8.

*February 20.*

**PRESENT.**—Messrs. G. H. Wing (Chairman), F. Tongs, J. Peebles, J. Gildard, F. Delaney, W. E. Gillam, and R. G. Allison (Hon. Secretary).

**POTATO-SPRAYING.**—The Secretary reported upon the potato-spraying demonstration arranged by the Board, and conducted on Mr. F. Tongs' farm by Mr. A. M. Lea. There was a good muster of farmers, who took a keen interest in the proceedings. In reply to a question Mr. Tongs said he was satisfied no damage had been done to the crop by the horse and machine traffic through it. Discussion followed on the prohibitory measures adopted by Western Australia against Tasmanian potatoes, and members were very strong in condemnation of same. The following resolution moved by Mr. G. H. Wing was carried unanimously:—"That this meeting emphatically and earnestly calls upon the Government to at once take action to secure the admittance into Western Australia of clean potatoes, and, if necessary, bring an action before the High Court of Australia to secure that end."

**SUGAR BEET.**—The Secretary gave his experience in sugar beet cultivation, which was listened to with interest by members. A hearty vote of thanks was accorded the speaker.

**PAPER.**—The Chairman promised to read an article from the Victorian "Agricultural Gazette" at the next meeting.

**NEW MEMBERS.**—Messrs. T. Wing, A. Gillard, and J. Ewington.

May 8.

**PRESENT.**—Messrs. G. H. Wing (Chairman), F. Tongs, J. Peebles, J. Y. Yaxley, J. Ewington, A. Gillard, and R. G. Allison (Hon. Secretary).

**DELEGATES TO ULVERSTONE CONFERENCE.**—Messrs. G. H. Wing and E. Tongs.

**SPRAYING POTATOES.**—Members expressed themselves as opposed to compulsory spraying. The following resolution moved by Mr. A. Gillard was carried:—"That this meeting is in favour of one inspection of potatoes shipped from this State." Mr. J. Yaxley said that there was something wanting in the inspection system at Devonport, as the same number of inspectors were on duty in the slack period as in the height of the export season.

**DISTRICT CONFERENCE.**—The Chairman, as delegate to the conference held by the Director of Agriculture at Ulverstone, gave his report of the proceedings, which was listened to with interest and expressions of approval by members.

**SEEDS.**—On the motion of Mr. Yaxley it was decided that the Secretary should apply to the Director of Agriculture for a supply of the following seeds for experimental purposes, with instructions as to methods of cultivation:—Flax, sugar beet, lucerne, and paspalum.

**NEW MEMBERS.**—Messrs. R. Pattison, W. A. Stuart, and J. Applebee.

**POTATO-SPRAYING.**—Mr. F. Tongs reported that he was digging potatoes sprayed by Mr. Lea, and invited members to inspect them. He had dug patches side by side, sprayed and unsprayed, measured, which resulted in a yield of a little over a ton in favour of the sprayed portion.

### Stoodley.

**PRESENT.**—Messrs. W. Bannon (Chairman), P. Bramich, J. Collins, C. Lehman, T. Tyler, P. Leo, G. Nolan, and J. Leo (Hon. Secretary).

**DELEGATE TO LAUNCESTON CONFERENCE.**—Mr. T. Tyler.

**POTATO BLIGHT.**—The success of Mr. Tyler's experiment in saving his potato crop from blight was discussed. Mowing off the tops as soon as the tubers were sufficiently advanced in growth has enabled this gentleman to market a perfectly clean crop. On a smaller scale Mr. C. Lehman also proved the efficacy of this means of warding off the dreaded blight.

**TREES.**—The Secretary was asked by the Chairman to write for particulars of the distribution of young trees. Several members were desirous of carrying out the suggestions of Mr. L. Evans with regard to planting pines, &c., to serve as breakwinds for the protection of stock and for ornamental purposes.

**WIRE NETTING.**—Members were anxious to know whether the Department would assist farmers to obtain wire netting at cost price.

**DAIRYING AND SPRAYING.**—Other matters debated were the best methods for improving dairy herds and the efficacy or otherwise of spraying for Irish blight.

### Stowport, May 17.

**PRELIMINARY PROCEEDINGS.**—A meeting of farmers was held on above date to discuss the desirability of forming a Board of Agriculture. Mr. W. A. Carruthers was voted to the chair. Mr. J. M. Douglass, Secretary of the Mooreville Road Board, enumerated the benefits accruing to members of Branch Boards, and strongly advised the formation of one in Stowport. Mr. J. A. Hurst, M.H.A., also favoured the formation of a Board in the district. Mr. J. G. Pearson read a letter from the Department of Agriculture describing the correct course to pursue in forming a Branch Board. On the proposition of Mr. J. A. Hurst it was resolved that a Board of Agriculture be formed for the Stowport district.

**OFFICERS.**—The election of officers resulted as follows:—Chairman, Mr. W. A. Carruthers; Hon. Secretary and Treasurer, Mr. J. G. Pearson.

**RULES.**—The rules of the Clarence Board were, with some modifications, adopted.

**SUBSCRIPTION.**—The subscription was fixed at 1s. per annum, with a proviso that a call should be made if this amount proved insufficient.

**DELEGATE TO LAUNCESTON CONFERENCE.**—Mr. T. M. Atkinson.

**QUARANTINE.**—On the initiative of Mr. J. A. Hurst the following motion was carried:—"That the Board's delegate be instructed to advocate some relaxation of quarantine with regard to dairy cattle."

**BULL TAX.**—Mr. J. A. Hurst moved, "That the delegate be instructed to advocate a tax of £1 per head per annum on all bulls, with the object of improving stock." Mr. J. M. Douglas thought the tax should be 30s. or £2. After further discussion the motion was carried.

**SPRAYING.**—It was resolved, "That this Board is not in favour of potato-spraying being made compulsory."

**DATE OF MEETING.**—It was decided that the Board should meet in the public hall each month at 8 p.m. on the Monday nearest the full moon. The next meeting to be held on June 12.

### Tyenna.

**PRESENT.**—Messrs. F. Brown, A. Sharpe, C. Schmidt, L. Chaplin, J. S. Burnley, B. Burnley, A. Marriott, D. Marriott, — Roberts, Sen., S. Roberts, — Loveluck, C. Brown, Mrs. Pitfield, and F. M. Smith (Hon. Secretary).

**RULES.**—The rules and regulations of the Clarence Board, with some slight alterations, were adopted.

**NEW MEMBERS.**—Messrs. Loveluck, C. Brown, and Alice Marriott.

**DELEGATE TO LAUNCESTON.**—Mr. J. S. Burnley.

### Upper Mountain River, June 3.

**PRESENT.**—Messrs. G. S. Parsons (Chairman), A. Griffiths, L. Schmidt, W. H. Schmidt, E. H. Schmidt, Geo. Oates, A. Moffat, and A. J. Stevenson.

**CORRESPONDENCE.**—A memo. was read from the Director of Agriculture re delegate to conference at Launceston, to which the Secretary stated that he had replied that no member of this Board had volunteered to attend.

**APPLE RUST.**—Mr. A. Moffat read from the "Tasmanian Mail" of September 28, 1907, a paper on the above subject, read by Mr. H. M. Nicholls, of Garden Island Creek, before a meeting of the Queenborough Board of Agriculture. This paper was received with much interest, and members considered that Mr. Nicholls' theory of a fungus disease undoubtedly accounted for one of the causes of rust on apples, but thought there was no doubt there were other causes, notably spraying with Bordeaux mixture, want of drainage, and lack of lime in the soil.

**BITTER PIT IN APPLES.**—The following paper on this subject was read by Mr. A. Griffiths:—"Recently we have had brought before our notice in the press a theory propounded by two scientists, that one, if not the only, cause of bitter pit in apples is the use of arsenate of lead as a spray. This may or may not be the cause of certain defects in the fruit, but as an orchardist of many years' experience, I can most distinctly assure these same scientists that bitter pit as known to us in this State is in no way the result of any spraying mixture used by us. Although this so-called disease has been found in our orchards ever since orcharding has been a distinct industry in itself, it has not been so virulent with us in this State as it appears to have been on the mainland of Australia. In Tasmania the use of arsenate of lead as a spray has only been adopted quite recently, and so far it has never been known to produce any marking on fruit having the faintest resemblance to bitter pit. In no sense of the word can bitter pit be called a disease. It is neither infectious nor contagious, is caused neither by

microbic nor fungus growths, and is neither the result of any disease in the parent tree nor the result of external injury. After applying the laws of cause and effect, I can come to no other conclusion than that bitter pit can be described as a constitutional weakness in the fruit itself; and if such is the case, it cannot therefore come under the restrictions of 'The Vegetation Diseases Act.' If we assume that bitter pit is a constitutional defect in the apple itself, let us first of all describe and define what it is. In appearance it is a more or less circular brown blotch under the skin of the apple, sometimes extending inwards towards the core of the fruit, or, to put it more correctly, radiating from the centre outwards. We have been assured by analytical experts that these brown portions of the affected fruit do not reveal any foreign substance that might destroy the cell-tissues, but that it is just the rupture of the tissues themselves. If we accept this definition of the pit, let us then deal with the probable cause. Undoubtedly, in my mind, this rupture of the cell-tissues is caused by the too rapid growth of the fruit at some period of its life. We all know that the tree, and also the fruit on the tree, is fed through the sap, which is obtained by the tree from the soil through its roots. Now this sap is water, with the necessary plant-food held in solution. The circulation of this sap is obtained by evaporation, the water being extracted by the sun's action through the leaves, and the plant-food that was in solution with the water being left behind. Now, when the water is supplied to the tree in abundance and the evaporation is rapid, the circulation of the sap is also rapid; but the sap may or may not always contain the same proportion of plant-food, or, in other words, the sap may become watery. The result of this would be that the tender and quickly-grown flesh of the fruit would become flooded with moisture, and the proportionate amount of food to build up the cell-tissue diminished. The likely result of this would be that the undernourished tissue would be unable to withstand the pressure of the extra proportion of water, and so become ruptured, the sequence being that the ruptured portion would, by the excess of water, become oxidised, just as an apple if left in water for several days will become oxidised under the skin, or as a peeled apple by contact with the oxygen of the atmosphere. Now, assuming this overgrowth theory is correct, where do we find bitter pit most prevalent? Is it found in old trees that are carrying a full crop of fruit of medium size? Certainly not. Does it romp on land that will not retain an excess of moisture? No. We find it mostly on fruit borne by young, vigorous trees, which do not carry a sufficient number of apples in proportion to their vigour. We find it in orchards or portions of orchards where the subsoil retains abundance of moisture; we find it on ill-drained lands; we find it on trees that have been heavily summer pruned, the extra sap being diverted to the fruit; we find it as a result of over-irrigation; and we have it more pronounced in wet seasons than in dry ones. In fact, we have it wherever and whenever the flow of sap is in excess. The remedies are, apart from rainfall, over which we have no control:—(1) Proper drainage of land; (2) judicious manuring; (3) avoid excesses in pruning; (4) when irrigating be temperate. It may be worth noting that bitter pit and rust in apples do not herd together."

### GEEVESTON FRUITGROWERS' UNION.

**PRESENT.**—Messrs. F. B. Hill, E. Burgess, W. Hyndes, F. J. Hyndes, H. Thiessen, G. Thompson, and E. Diers.

**CHAIRMAN.**—Mr. F. B. Hill was voted to the chair.

**TITLE OF UNION.**—The Chairman explained the nature of the meeting, and pointed out that it was necessary to choose a title for the union. It was decided that it be called "The Geeveston Fruitgrowers' Union."

**SUBSCRIPTION.**—This was fixed at 1s. per annum.

## METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING MAY, 1911 AND 1910.

Station.	1911.	Wet Days.	1910.	Average.
<b>NORTHERN.</b>				
Marrawah .....	558	19	919	580
Cape Grim .....	305	18	652	367
Sunny Hills .....	—	—	1038	—
Irish Town .....	456	25	1015	—
Black River .....	409	12	622	383
Stanley .....	376	21	623	331
Flowerdale .....	—	—	806	—
Flowerdale, Upper .....	452	13	834	516
Yolla .....	729	23	1061	791
Wynyard .....	348	15	694	—
Burnie .....	*272	14	657	355
Ridgley .....	388	13	1005	—
Ulverstone .....	424	11	573	336
Kindred .....	305	15	834	—
Devonport .....	269	15	579	423
Latrobe .....	—	—	630	401
Northdown .....	193	8	596	264
Beaconsfield .....	242	9	849	—
Low Head .....	223	16	560	247
Black Bluff .....	497	19	1374	—
Moina .....	419	19	—	—
Central Castra .....	377	9	895	518
Wilmot .....	301	9	795	—
Gawler .....	—	—	849	640
Sheffield .....	271	12	773	—
Deloraine .....	294	9	—	313
Caveside .....	272	12	757	474
Cressy .....	217	16	506	208
Longford .....	263	18	381	200
Westbury .....	255	13	589	308
Carrick .....	302	16	378	—
Launceston .....	210	20	650	260
Glengarry .....	275	15	727	399
Frankford .....	—	—	909	423
Exeter .....	347	10	831	—
Lilydale .....	230	7	875	361
St. Patrick's River .....	362	20	—	—
Springfield .....	394	21	1147	782
Springfield South .....	397	6	1096	—
Scottsdale .....	319	16	792	412
Branxholm .....	364	13	910	—
Ringarooma .....	421	16	951	473
<b>WEST COAST MOUNTAIN REGION.</b>				
Whale's Head .....	—	—	787	—
Mt. Balfour .....	689	29	1597	—
Magnet .....	595	22	1574	—
Waratah .....	*530	27	1442	775
Que .....	482	19	—	—
Tullah .....	433	19	1446	—
Renison Bell .....	546	22	—	—
Mt. Read .....	786	25	1868	1144
Dundas .....	654	22	—	—
Zeehan .....	632	21	2003	964

\* Telegraphic reports only.

## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Mt. Lyell .....	693	22	2057	1093
Queenstown .....	590	15	1825	—
Strahan .....	—	—	1448	455
Cape Sorell .....	600	27	1198	522
Pillinger .....	577	16	1434	—
CENTRAL PLATEAU.				
Great Lake .....	—	—	517	276
Bronte .....	291	16	—	—
Steppes .....	369	13	—	—
McGuire's Marsh .....	211	11	—	—
Woods' Quoin .....	435	20	—	—
Interlaken .....	345	13	203	240
Dog's Head .....	—	—	—	345
DERWENT VALLEY.				
Glenmark .....	—	—	350	—
Bashan .....	—	—	273	363
Osterley .....	220	10	—	—
Bothwell .....	233	18	147	154
Cleveland .....	235	11	—	—
Hamilton .....	219	21	223	138
Ellendale .....	282	18	423	295
Glenora .....	245	12	279	178
Belmont .....	—	—	219	155
Clarendon .....	193	10	217	154
New Norfolk .....	243	12	229	162
Uxbridge .....	294	11	351	280
Lachlan .....	299	11	251	205
SOUTH-EASTERN.				
South Bruni .....	—	—	370	368
Adventure Bay .....	698	18	—	—
Southport .....	*646	—	342	312
Lunawanna .....	654	15	224	—
Port Esperance .....	631	18	287	308
Port Cygnet .....	589	18	203	—
Petchey's Bay .....	462	22	268	—
Middleton, Channel .....	548	19	130	—
Kettering .....	614	21	156	—
Franklin .....	534	15	—	230
Kingston .....	445	15	—	—
Mt. Nelson .....	373	13	135	209
Mt. Wellington (Gap) .....	920	—	338	488
The Springs .....	952	19	314	517
Hobart Observatory .....	409	21	159	180
Hobart Botanical Gardens .....	359	18	135	184
Hobart Waterworks .....	556	15	199	274
Glenorchy .....	351	13	165	177
New Town .....	—	—	—	220
Bellerive .....	408	15	144	191
Bellerive State School .....	384	14	—	—
Lindisfarne .....	401	13	—	—
Rokeby .....	512	11	116	192
Sandford .....	454	11	118	181
Premaydena .....	506	11	141	155
Carnarvon .....	691	17	247	384
Sorell .....	473	14	105	204
Cambridge .....	461	11	98	190
Craigow .....	362	13	93	—

\*Telegraphic reports only.



## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Richmond ... ..	414	14	76	158
Brighton ... ..	—	—	126	135
Tea Tree ... ..	311	13	113	—
Bagdad ... ..	357	18	151	193
Broadmarsh ... ..	283	11	160	—
Kempton ... ..	262	15	126	147
MIDLAND.				
Spring Hill ... ..	266	14	136	128
Jericho ... ..	294	14	135	—
Mt. Seymour ... ..	379	15	189	144
Oatlands ... ..	350	19	168	160
Bow Hill ... ..	340	13	—	—
Andover ... ..	353	14	130	192
Woodbury ... ..	292	16	224	—
Beaufront (Ross) ... ..	229	10	246	162
Bendeemer ... ..	248	15	446	231
Glen Connell ... ..	—	—	392	204
Campbell Town... ..	228	16	330	156
Hanleth ... ..	172	8	216	166
EAST COAST.				
Kellevie ... ..	—	—	107	—
Buckland... ..	430	—	103	—
Triabunna ... ..	466	13	74	205
Louisville... ..	441	18	—	—
Swansea ... ..	269	19	98	189
Riversdale ... ..	292	10	100	248
Cranbrook ... ..	—	—	65	261
Lake Leake ... ..	482	12	315	320
Ormley ... ..	363	13	133	222
Fingal... ..	320	9	62	187
Cullenswood ... ..	356	12	93	300
St. Marys ... ..	488	9	122	239
Tower Hill ... ..	—	—	206	—
Mathinna ... ..	319	10	167	277
Scamander ... ..	228	9	95	245
St. Helens ... ..	251	16	133	218
Gould's Country ... ..	426	13	480	217
Lottah ... ..	555	21	672	827
Poimena ... ..	—	—	—	581
Eddystone Point ... ..	232	13	277	—
Boobyalla... ..	186	15	248	244
KING ISLAND.				
Cape Wickham ... ..	—	—	582	280
Yambacoon... ..	378	23	829	308
Currie Harbour ... ..	390	29	739	—
Monk Breton ... ..	—	—	845	—
Surprise Bay ... ..	317	26	767	—
The Chalet ... ..	300	24	743	—
FLINDERS ISLAND.				
Thule ... ..	182	14	219	259
OTHER ISLANDS.				
Kent Group ... ..	—	—	298	272
Goose Island ... ..	106	8	263	249
Cape Barren Island ... ..	—	—	351	302
Swan Island ... ..	—	—	165	266
Maateuyker Island ... ..	—	—	628	401

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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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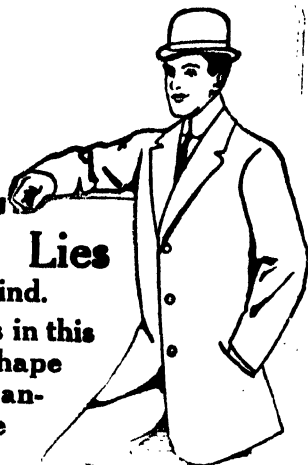
## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

The "Gazette" is sent free to all members of Boards of Agriculture. Any member not receiving a copy should communicate with the office at Hobart.

Correspondents are requested to send in matter not later than the 5th instant.



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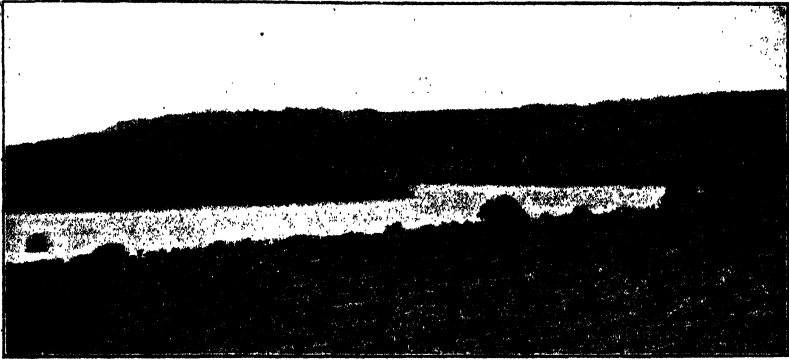
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# The Agricultural Gazette

THE JOURNAL OF THE AGRICULTURAL DEPARTMENT,  
TASMANIA.

NEW SERIES.  
VOL. XIX., No. 7.

JULY, 1911.

PRICE  
THREEPENCE

## AGRICULTURE AND FORESTRY IN THE HAWAIIAN ISLANDS.

A COPY of the report of the Board of Commissioners of Agriculture and Forestry of the Territory of Hawaii for the biennial period ending December last has come to hand. In tree-planting the Division of Forestry helps the people of the Territory in several ways. It gives advice as to how, what, and when to plant. It furnishes seed and seedlings at cost price, with many special periods of free distribution. And as far as appropriations permit, it plants forests itself on Government land. In 1909 and again in 1910 special efforts were made on Arbor Day to give out to a large number of persons throughout the Territory trees for planting on their own land. Sub-nurseries and temporary distributing stations were established, from which, with the Government nursery at Honolulu, there were given out gratis 63,614 trees in 1909 and 30,482 in 1910. The total sent out from the various nurseries, including those given free for 1910, exceeded a quarter of a million. What the Division of Forestry is striving to accomplish, amongst other things, is the introduction of trees that will take care of themselves and spread naturally. Two special lines of investigation carried out by the Division of Forestry during the past two years are the



study of the planted forests of eucalypts and the botanical survey of the Territory.

#### ARBOR AND CONSERVATION DAY.

Interest in the above has steadily increased. In this connection mention may well be made of the widespread and genuine interest in conservation that has been manifested by several organisations of women in this Territory, notably by the Hawaii Branch of the Women's National Rivers and Harbours Congress and by the Conservation Committees of the Hawaii Chapter of the Daughters of the American Revolution and the College Club of Honolulu. Among other things prizes have been offered in a number of schools for essays on conservation, and various meetings have been held at which creditable papers were presented dealing with conservation and forestry.

The report points out that Mr. McBride, who is in charge of the nursery at Homestead, has done much private tree-planting during the past five years. On Arbor Day, 1909, he planted 6000 trees—mainly eucalypts—and during 1910 he set out 13,000 more, bringing the total of trees planted up to 36,540. The report goes on to point out that two things are to be borne in mind in regard to forestry: first, that forestry is a business proposition, in that forests are grown to meet definite practical economic needs; and, second, that forestry is a matter which concerns the individual and the corporation as well as the people collectively.

From an address entitled "The Part Played by the Forest in Conservation," we quote the following:—

"Hawaii is essentially an agricultural community, largely dependent upon irrigation. Under our local conditions of sharply-diversified climate, of varied topography, and of the need—the more pronounced because of our limited areas—of putting to its highest use every acre of our arable land, it is essential that provision be made for the wise utilisation of every drop of water that can be made to do duty—be it used for irrigation, for domestic supply, for fluming cane, or for power development. This can only be accomplished by the aid of the forest. With our short, steep watersheds, heavy rainfall, and lack of adequate storage facilities it is self-evident that the function exercised by the forest on the catchment basins, and in general over the watersheds, is of much more importance here than in most other countries. Far and away the chief value of the Hawaiian forest is as a protective cover for equalising and making dependable the sources of our water-supply. For retarding run-off, protecting the surface against erosion, and helping to form a natural reservoir, from which are fed the streams and springs, it is hard to conceive of a better cover than the dense mass of trees, shrubs, ferns, and undergrowth that together make up our native forest. Its value is too evident to require argument. But under present-day conditions such a forest can only be permanently maintained by being cared for. . . . And why is it that we must do this? Why this

constantly recurring talk of forests and forest protection? Why not leave it to the Government officials to look after the forests—that is what they are paid for? The answer to these questions is, simply and solely because forestry is a business necessity. Wood and water are the first needs that must be satisfied in any community. Both are products of the forest. And in planted forests we have, too, an asset of constantly increasing value; for the production of wood is one of the pressing needs of local conservation.”

The report deals with many other subjects of importance to farmers, and is well illustrated throughout.



THE great utility of forest plantations in saving snow water to the adjacent fields should be thoroughly understood. The summer rains are also saved to the farm by the same means.

## CONFERENCE OF BOARDS OF AGRICULTURE AND KINDRED SOCIETIES.

Held in Banquet-room, Albert Hall, Launceston, June 15 and 16, 1911.

### First Day.

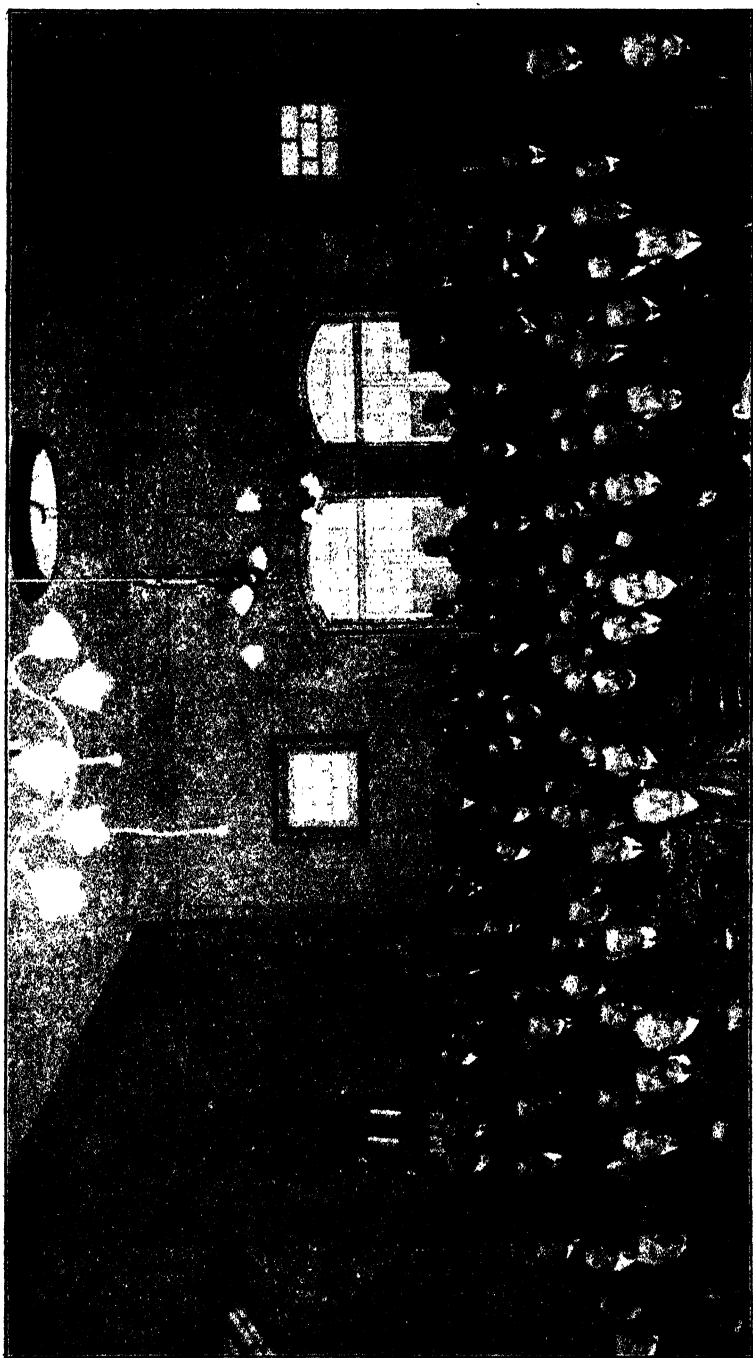
THE conference of Boards of Agriculture, Farmers' Clubs, Agricultural Associations, and kindred bodies was opened on 15th June, under the presidency of the Director of Agriculture (Mr. Albert H. Benson), who had with him Mr. A. Conlon (Dairy Expert), Mr. T. A. Tabart (Chief Inspector of Stock), Mr. R. J. Terry (Poultry and Pig Expert), Mr. J. Osborne, Jun. (Fruit Expert), and Mr. L. A. Evans (Agricultural Organiser).

### MAYORAL WELCOME.

The Mayor (Alderman Oldham) said it afforded him an immense amount of gratification to see such a large gathering to discuss questions in which the future welfare of the State was so closely involved; also to welcome the delegates to the city. He hoped that the deliberations would be of such a character as to make legislation possible, and the State would obtain the best results.

The Director, on behalf of the conference, returned thanks to the Mayor for the welcome. He hoped that the conference would do good work. He moved a hearty vote of thanks to the Mayor for his presence.

The Minister of Agriculture (Mr. Hean), in opening the conference, expressed his pleasure at the Mayor's presence to welcome the delegates. He recognised that on the futurity of the agricultural and pastoral industries Launceston so largely depended. He had been asked to open the conference, and he did so with pleasure. The men who were on the land were engaged in a patriotic and national work. They had no selfish motives in belonging to Boards of Agriculture, Farmers' Clubs, or kindred associations. He and his Government appreciated the great benefits of these associations to the State. There was need for agricultural education, as those on the land had to fight against diseases, noxious weeds, &c. Agriculturists were slow to recognise this knowledge, but the societies collectively were rising to it. Competition was very keen, and there was no time more than now when the training of the mind was as necessary as the training of the hand in agriculture. The present trend of the times in the labour market indicated that farmers would have to pay higher wages, and under the conditions of higher wages in other industries the cost of production was advancing. Yet he had to sell his product at no advance in price, as he could not rule the price for wheat, wool, and fruit. So as to enable the farmer to pay higher wages, and compete in production, every effort should be made to teach him the latest up-to-date methods in working his farm. In Tasmania we had a country second to none in the States, and, with-



*Delegates attending Conference at Albert Hall.*

out depreciating any other industry, Tasmania's prosperity could only be built up by the agricultural and pastoral industries. The Government intended doing all it could to settle people on the land, and in this connection it was intended to introduce amendments to "The Crown Lands Act," giving additional power in connection with the opening of the lands, and also in regard to purchasing estates. The Government had set aside a sum for an information bureau, so that here all information will be obtainable regarding the lands, settlement, &c. The Director of Agriculture had laid before the Government a proposal for the establishment of an agricultural farm. This farm would be experimental, educational, and practical; and, owing to the latter, would be self-supporting. The Government was in accord with the proposition. The Government also desired to assist in the importation of high-grade dairy cattle. He was not going to touch any of the subjects, but whatever resolutions were arrived at would receive full consideration. He hoped a great deal of good would accrue from the conference, and that delegates would gain a large amount of knowledge which would be beneficial to the State.

#### NAMES OF DELEGATES.

The following delegates attended:—

*Branch Boards.*—Avoca, J. Conway; Barrington, A. E. Moore; Beulah, E. Best; Carnarvon, T. Tanner; Cressy, H. T. Hingston, S. Brumby, G. Gill, J. Shipp; East Mersey, M. Nichols; Exton, J. H. Room, A. Badcock, — Brumby, — Long, A. Cooper; Elliott, F. Hyland; Forth, H. A. Vertigan; Flowerdale (Upper), S. Margetts; Frankford, C. I. Knight; Franklin, E. Freeman, W. J. Blackman; Geeveston, F. J. Hyndes, J. O'Halloran; Glengarry, G. Stewart; Glen Huon, E. H. Wright; Glenorchy, S. Shoobridge, Hon. W. Clifford; Irish Town, A. Champion; Kettering, R. Creighton; Kindred, C. C. Polden; Kingston, W. D. Maddock; King Island, A. Bertram, D. L. Yates, F. Brumby, F. Forrest, C. Bischoff, H. R. Carnac; Lilydale, D. W. Bostock; Lymington, E. B. Pixley; Macquarie Plains, H. Shoobridge, A. W. Gould; Marrawah, J. W. Thompson, J. Moore; Meander, H. H. Evans; Mt. Seymour, W. Wilson; Mowbray, W. Geale; Mooreville-road, R. Laird; New Ground, T. R. Addison; Nook, J. Shay, J. Aitken; Northdown, T. McDonald; North Motton, H. O. Allen; Queenborough, W. H. Connor; Ringarooma, L. J. Collins; Railton, P. H. White; Riana, J. McHugh; Rubicon, T. Radford, A. Radford, H. Slater; Ridgley, W. Morris, R. Hilder; Scottsdale, P. Tucker; Scottsdale West, N. S. Bostock; Sheffield, O. Ridgley, W. York, St. Helens, T. Haley; St. Marys, Colonel Legge; Stowport, T. M. Atkinson; Stoodley, T. Tyler; South Springfield; W. W. Tankard; Table Cape, J. D. Telford; Tyenna, J. S. Burnley; Wilmot, R. Quail; Yolla, D. T. Jones.

*Kindred Societies.*—Tasmanian Farmers' and Stockowners' Association, L. C. Thirlwall, N. Nicholson, A. Cotton, F. Burbury; Tasmanian Agricultural and Pastoral Society, Z. Dent, D. Viney, R. Hughes, P.

Hart, J. Gunning; Tasmanian Fruitgrowers' Union, L. M. Shoobridge; Southern Tasmanian Agricultural and Pastoral Society, M. Fletcher, L. N. Murdoch; Devonport Agricultural and Pastoral Society, H. H. McFie; West Devon Agricultural Society, W. J. Carter, J. Hodgetts; North-Western Agricultural Association, A. Boatwright; Northern Tasmanian Fruitgrowers' Association, P. O. Fysh, F. French, E. B. Genders, E. V. Knight, North-Eastern Agricultural Association, J. B. Hayes; Midland Agricultural Society, Henry Foster; Wilnot Dairy Factory, D. E. Forbes; Table Cape Butter Factory, — Callaway; Duck River Butter Factory, W. Geale; Yolla Dairy Produce Company, J. Hyland, J. W. Beamish; North-Western Co-operative Dairy Company, — Clingeffer, J. Hurst (M.H.A.); Ringarooma Co-operative Dairy Company, J. Edgar, M. Holmes; Scottsdale Co-operative Dairy Company, A. Coplestone; Ulverstone Co-operative Dairy Company, E. Hobbs, A. T. Bonney; West Tamar Fruitgrowers' Association, Steele Traill (Exeter), D. T. Medwin (Windermere), J. Lutwyche (Sidmouth), H. Robinson (Frankford), Thos. Squires (Black Sugar Loaf), J. A. Jones (Bridgenorth), W. Gowans (Glengarry); East Tamar Fruitgrowers' Association, C. White (Newnham), G. E. Archer (George Town), J. A. Likeman (East Tamar); Tasmanian Dairymen's Association, T. Bingham, A. Heath, T. Hopkins, G. M. Barnard, J. Wilson, W. H. Room; Circular Head Butter Factory, V. Plummer; Tasmanian Cool Storage Company, R. Manley; Oliver Bros.' Dairy Factory, — Oliver; Ross Municipality, W. H. Bennett; Ulverstone Potato Conference, Hon. H. A. Nichols.

#### TIME ALLOWANCE.

It was decided, on the motion of Mr. H. A. Nichols, seconded by Mr. W. Clifford, "That the time allowance for speaking be 10 minutes for the mover, seven and a half minutes for the seconder, and five minutes for other speakers."

#### QUESTION OF VOTING.

A lengthy discussion took place on the question, "Should the voting be general, or confined to one delegate." Several motions and amendments were proposed, and it was ultimately decided that the voting be one association one vote, and representatives of private dairy factories also to have this privilege.

#### THE DAIRY INDUSTRY.

The Director of Agriculture (Mr. Benson) introduced the subject, "How to Improve the Dairy Industry," and said:—

I had only been a very short time in Tasmania when I was very favourably impressed with the suitability of this State for dairying, and was surprised to find that the industry was then in a decidedly unsatisfactory condition; as not only were our local consumers largely dependent on the mainland States for their supply of butter

during several months of the year, but even during the height of the season the export of butter was comparatively insignificant. This neglect of one of the most important and profitable primary industries seemed unaccountable to me, knowing, as I did, from practical experience what the dairying industry has done for the mainland States and New Zealand, to say nothing of countries on the other side of the world. I therefore decided to go further into the matter, in order to determine if possible the reason why the industry was in such disrepute. As the result of personal observation and inquiry I was not long in making up my mind that this State is eminently adapted for dairying, and I stated at the annual meeting of the Tasmanian Dairymen's Association, held in this city last year, that in my opinion Tasmania was destined to become the Denmark of the Southern Seas, an opinion that I see no reason to modify, after having gained a much wider knowledge of the capabilities of the State than I then possessed.

Few parts of the world with which I am acquainted are so eminently adapted for dairying as Tasmania, as not only is the climate the most favourable of that of any of the Australian States, but the absence of droughts, the magnificent water-supply, and the high-feeding value of the grass and other fodder crops are such that the highest quality dairy products can be obtained. This is shown by the fact that (according to the information supplied by Mr. Berry, the representative of one of the largest butter firms in London, who recently visited Tasmania) over 95 per cent. of the butter exported from Tasmania during the 1910-1911 season has been graded first-class, a very much higher percentage than that obtained by any other Australian State, and only some 3 per cent. less than the Dominion of New Zealand, which turns out 98 per cent. of first-class butter, and which as a consequence realises a higher price on the London market than that obtained by any Australian State, a price that the excellence of the Tasmanian product will be entitled to once our output is in a position to be sold as a Tasmanian, instead of an Australian, product.

The temperate climate, evenly-distributed rainfall, and suitable soils met with in many parts of the State are eminently adapted for the production of such high-class grasses as cocksfoot, English, and Italian rye grasses, *Phalaris commutata* and other valuable exotic grasses, as well as many kinds of clover and farm crops, such as oats, peas, mangolds, &c., that can either be conserved in the form of ensilage or be stored till required for feed. There is a very general and erroneous opinion that dairying in Tasmania will only pay during the summer months, when there is a flush of grass, as it is considered that it will not pay to grow crops for winter feed. No greater mistake was ever made, as has been proved in many countries having a much more severe winter than that experienced in even the coldest parts of this State. There is no use to which the bulk of the crops grown on the farm can be turned to more profitable advantage than by their con-

version into butter for export, and none that takes so small a toll from the soil.

The suitability of Tasmania for dairying is also shown by the excellent records that have been obtained from good dairy cows at local shows during recent years, records that are unfortunately confined to a very limited number of selected animals, but which show that were the right kind of cows kept and properly looked after there is nothing to prevent the dairy industry becoming, not only a very profitable occupation to those engaged therein, but a valuable asset to the State as well.

*The Value of Dairying as an Adjunct to General Farming.*

To those who have seen the wonderful strides that dairying has made during the last 20 years, and more especially the past 10 years, in the States of Victoria, New South Wales, and Queensland, it is needless to point out what the dairy cow has done for the farmer. One has only to visit the principal dairying districts in these States, note their general prosperity, and then compare their present flourishing condition with the stagnation of only a few years ago, to realise the change that has been brought about by dairying. Go into a dairying district and—as I have done—ask the bankers who are their soundest clients; ask the storekeepers which of their customers meet their liabilities most promptly—and you will receive only one answer, “the dairyman,” who, with the ready cash in hand that he receives at short intervals for the produce of his cows is in a position to pay his debts and buy for cash in the lowest market; consequently the financial condition of the district is satisfactory, and steady progress is being made.

To those who have not had an opportunity of seeing, as I have, the marked improvement brought about in many districts on the mainland by the development of the dairy industry, I think that the following figures will enable one to form an idea of the progress that has been made in consequence of the circulation of the large amount of ready money that is being obtained by the sale of dairy produce.

Victoria commenced to export butter during the 1889-90 season, and the value then exported amounted to £51,000.

The value of the butter exported from July 1, 1910, to June 1, 1911 (11 months), has risen to £2,437,575.

Queensland commenced to export in 1896, and during the 1896-97 season exported 63 tons 13 cwt.

In 1901 the amount was only £51,000; but in 1910 the value of the dairy industry had increased to £1,700,000, of which the value of the butter exported was £900,000.

These records of the rapid rise of the dairy industry in the most southerly and most northerly of the mainland States should act as a powerful stimulant to dairying in Tasmania, as we are now in about the same position that Victoria was in some 21 years ago, and that Queensland occupied only 10 years since; as Tasmania has this season exported 636 tons of butter, which, at £100 per ton, amounts to £63,600 (£100



per ton is slightly less than 10½d. per lb.). In addition to the actual cash value of the dairying industry to the State, the judicious combination of dairying with mixed farming has a marked effect in maintaining the fertility of the land. In this State it has been a common practice to sell practically all that a farm produces; as nearly the whole of the potatoes, root crops, wheat, oats, barley, peas, and straw are frequently sold off the farm, and in many cases are sent right out of the State. To continue this policy indefinitely means the ruin of the farming industry, as we are slowly but surely robbing the State by taking everything we can out of the soil, and returning practically nothing to it. The ill effect of this injudicious method of farming is already apparent in many districts, where soils that yielded very heavy returns when first broken up have become so impoverished by the depletion of their available plant-foods, and the supply of organic matter (without which no commercial fertilisers give the best results), that they fail to produce satisfactory crops, and in some cases have been allowed to go out of cultivation. This unsatisfactory condition can be prevented by judicious cropping combined with dairying, as, instead of selling off the whole of the produce of the farm in its raw state, a certain portion should be fed to dairy cows, and be converted into the concrete form of milk-fat. By this means the bulk of the plant-food contained in the crops so fed to the cows, as well as a large amount of organic matter, is returned to the soil by their excreta; and if only the milk-fat is sold and the skim-milk is consumed on the farm the loss of plant-food is very slight indeed, as pure milk-fat does not take an atom of plant-food out of the soil. The selling of the straw off the farm is a practice that cannot be too strongly condemned, for unless a sufficient quantity of farm manure is returned to the land to make good the straw that has been sold, it is the worst of bad farming. The straw should either be consumed by the stock on the farm or converted by them into manure, to be returned to the soil, thereby maintaining its fertility and keeping up its supply of organic matter.

Every ton of potatoes or straw and every bag of oats, peas, chaff, &c., sent out of the State to other parts of the Commonwealth depletes our soil of its available supply of plant-food, which must be made good if its fertility is to be maintained, and does not add materially to the wealth of the Commonwealth; on the other hand, every ton of produce that is consumed, converted into milk-fat, and exported to England or elsewhere not only causes no loss to the fertility of our soil, but, as it is sold for gold, adds materially to our national wealth.

There is also another very important consideration, and that is: What chance is there for the profitable extension of the agricultural industry in this State if it is to be continued on the present lines of growing raw products for transmission to the other States of the Commonwealth? A profitable market for our raw product is dependent mainly on the failure or partial failure of such products on the mainland, as when

seasons are good there the demand is limited, and prices are low, so that it is questionable were we to extend the growing of such crops as potatoes, oats, chaff, &c., to any great extent, whether we would be able to obtain a market at a price that would leave a reasonable margin of profit, as the question of shipping raw products such as potatoes and chaff to distant markets is impracticable. On the other hand there is no fear of overproduction, provided that we can consume our raw products in the State and convert them into a concrete form that can be exported to the markets of the world.

*The Present Position of the Dairy Industry.*

During the past 12 months there has been a marked improvement in the dairy industry of this State, and many farmers are beginning to realise that there is money in it. The improvement is due to several causes, of which the losses due to the ravages of Irish blight and the impoverishment of the soils of many of the older potato-growing districts by injudicious cropping are the chief. At the same time there is a general feeling spreading amongst farmers that it is not advisable to have all their eggs in one basket, and that consequently mixed farming combined with dairying is likely to prove more profitable in the long run than the growing of one particular crop.

Further, in the opening up of new country the dairy cow is the pioneer, as cream is the only farm product that can be produced profitably under such conditions, or that will pay for carting long distances over bad roads. There are large areas of such country in different parts of the State awaiting settlement at present yielding no return, but which can be converted into a valuable asset to the State if devoted to dairying. As already pointed out, Tasmania is to-day in a similar position as regards the export of butter to which Victoria was 21 years and Queensland 10 years ago. The present value of the dairy industry of this State, estimated on the basis of consumption, as given in the official Year-book of the Commonwealth of Australia (No. 4, 1911), is as follows:—

Taking the population of Tasmania at 191,000, and allowing 22·8 lb. of butter (the official estimate) as the amount consumed locally per head of the population, the total consumption of butter in one year amounts to 4,354,800 lb., which at 10d. per lb. gives a total of £181,450. From this sum we have to deduct the value of the butter imported, which amounted, in 1909, to £76,117 (the last official figures available, and probably double the amount of the imports for this year), in order to arrive at the quantity produced locally. This gives us the sum of £105,333 as the value of the butter made and consumed in the State. To this must be added the value of the butter exported during 1910-11—636 tons, or 1,423,464 lb.—which at 10d. per lb. amounts to £59,311. The total value of the butter produced for 1910-11 is thus not less than £164,644, and when the actual amount of the imports is known it will probably be found to be not less than £200,000, as it is less than a month ago since the first importation for this season took place.

As regards cheese: Working on similar lines we find that the estimated consumption is £17,667 10s. per annum, and if we deduct from this sum the value of the cheese imported in 1909 (£3371), and add the value of the cheese exported during the season 1910-11 (£3002 12s. 2d.), we get as the value of the cheese produced the sum of £17,399 2s. 2d. It is a difficult matter to arrive at the value of the milk used for human consumption, as there are no statistics available that show the consumption per head per annum. If, however, we allow one half-pint per head per day and estimate the value of same at the retail price of 4d. per quart, it will work out at not less than £290,479 3s. 4d. per annum. This is, however, probably too high an estimate; still I have little doubt that the value of the milk used for human consumption is not less than £200,000 per annum.

Taking these figures, then, as a reasonably correct estimate, it will be seen that the total value of the dairy industry for the year 1910-1911 is not less than £400,000, of which sum £59,311 has been received for butter exported, and the balance has been paid for the butter, cheese, and milk produced and consumed within the State.

Comparing the dairying industry with the beef industry, we find that the estimated number of cattle of all ages slaughtered for consumption in Tasmania is some 36,000 annually, and as many of the cattle so slaughtered are either calves or of light weight, if they are estimated as being worth £8 per head all round, it is as much as they will bring. This makes the present value of the beef industry £288,000, and shows that dairying, even in its present undeveloped condition, is a more valuable industry for the State than the raising of beef. Further, there is little chance of our being able to profitably increase our output of beef, as the present supply is more than sufficient to meet the local demand, and we cannot hope to produce beef at a price that will enable us to compete successfully in the markets of the mainland or enable us to establish meat works. The dairy industry, on the other hand, has no such limitations, as it is not dependent on local markets, but its products can be disposed of profitably elsewhere.

#### *How the Industry may be Improved.*

I have endeavoured to show as clearly and concisely as possible, firstly, the suitability of Tasmania for dairying; secondly, the value of dairying as an adjunct to general farming; and thirdly, the present position of the dairy industry—in order to lead up to the main object of my address, “How to Improve the Dairy Industry.”

Successful dairying depends on three primary considerations: First, on having the right class of dairy cattle; second, on the care and attention given to such cattle, especially as regards judicious feeding and the conservation of fodder; and third, on the scrupulous cleanliness of the dairy and factory.

As regards the first consideration: I will again refer to the official Year-book of the Commonwealth of Australia, 1901-1909, in which it is

stated that there were 50,996 dairy cows in this State in 1909, yielding an annual return of 227 gallons of milk per cow. Comparing this return with that obtained in New South Wales and Victoria, namely, 266 and 261 gallons respectively, and, further, comparing the return of 1909 with 1908, it will be seen that whilst the yield in Victoria has increased by 18 gallons, and that in New South Wales by 9 gallons, the yield per cow in Tasmania has decreased by 38 gallons. Comparing these yields with those obtained from dairy cattle in England, where a cow that gives less than 500 gallons per annum is not considered worth keeping, and where the milk-yield for a herd of 51 Lincoln Red Shorthorns, one-quarter of which were first calf heifers, belonging to Mr. John Evens, of Burton, amounted to an average of 838·5 gallons per cow, it will be seen that there is great room for improvement, as it costs just as much to feed, milk, and attend to an inferior cow as it does in the case of one that will give three times the yield. There are undoubtedly good cows in the State, but unfortunately they are in a small minority; the inferior and consequently unprofitable, animals greatly outnumber those that are worth keeping. The question therefore arises: How are we to improve our present dairy herds? This can be accomplished in two ways: First, by means of natural selection, by means of which every cow that does not come up to a certain standard is weeded out, and only those cows that yield a profitable return are bred from, and only such bulls are used as are the progeny of a line of milking ancestors, as such bulls will have the power of perpetuating these milking qualities in their offspring. The inferior quality of many of our dairy cattle is undoubtedly due to the want of careful weeding out in the past and to the use of mongrel bulls, whose only possible use has been their ability to reproduce their species. Improvement by natural selection is necessarily slow, as everyone knows who has had the experience of breeding up a herd to such a degree of perfection that there are no unprofitable animals in it; and that brings us to the second way in which we can improve our herds, namely, by the importation of dairy cattle from those States in which breeders have devoted many years to the improvement and the fixing of the milking quality of their herds. By the importation of such cattle we start at once with the experience gained by a generation, or even more, of dairy-men on the mainland, instead of having to wait many years before obtaining the same result. The importation of such approved dairy cattle in sufficient numbers to have any effect on the value of the dairy industry of this State is quite out of the question at present, as the quarantine regulations in force are such that, even were the necessary space for quarantine available, which it is not, the cost of quarantine would prevent the introduction of any large number. The question therefore arises, is it advisable to modify the present quarantine regulations so as to permit of the introduction of approved female dairy cattle under a system of inspection that will be a safeguard to our cattle and dairy industries (for the dairymen have even more to fear from the introduction of disease than the cattlemen, as their interests are greater),

and thus give our farmers and dairymen a chance to make dairying an industry of which the State will be proud; or are the risks so great that it is advisable to let the present regulations stand as they are? This is the point, gentlemen, that I desire to submit to your consideration, but before submitting same I will endeavour to show in the briefest manner possible what risks will be run by dairymen and cattlemen if the present quarantine regulations are modified.

In the first place, I may state at once that the indiscriminate introduction of dairy cattle cannot be entertained for a moment, but if it is the wish of the majority of those interested in the dairy and cattle industries that approved dairy heifers be introduced into the State, then I would suggest that such importation be only permitted when they have complied with the following regulations:—

- (a) That only approved female dairy cattle not exceeding three years of age be imported.
- (b) That such cattle be obtained direct from the dairy farm where reared.
- (c) That no such cattle be obtained at fairs, markets, or from dealers.
- (d) That the owner of such cattle signs a declaration to the effect: 1st, that the cattle have been bred by him and have never been out of the immediate district where bred; 2nd, that there has been no disease of a contagious nature on his farm or in the neighbourhood thereof during the life of the cattle.
- (e) That the dairy supervisor of the district from which such cattle are obtained certifies that the farm and district from which they are obtained has been free from any contagious cattle disease for at least three years.
- (f) That the chief inspector of stock certifies: 1st, that the herd from which such cattle are obtained has been free from contagious diseases for at least three years; 2nd, that the district from which such cattle are obtained has been free from contagious cattle diseases for at least three years.
- (g) That such cattle have passed the tuberculin test.

The risk of introducing disease will be very slight indeed under the conditions I have suggested, and, as regards pleuro-pneumonia, these conditions will be a greater safeguard than the present quarantine of 90 days, under which it is possible to introduce an animal that has recovered from this disease and has become what is known as a "lunger" or carrier; an animal that is capable of introducing the disease for a much longer period than that covered by the 90 days' quarantine. This was shown in the case of one of the latest outbreaks in Victoria, where the disease was traced to an animal that had been eight months in the State. Pleuro-pneumonia is only spread by actual contagion, by cattle inhaling the warm breath of the affected animal; it is not hereditary; consequently where there has been no outbreak in the herd or district during the life of the imported animals, there is no danger of their being

affected. Further, the disease is one that can be kept under control and be prevented from spreading by taking the necessary precautions. Science has made rapid strides during recent years, not only in the treatment of human disease, but in the treatment of those attacking animals, and diseases for which there were at one time no known remedies can now be successfully treated.

This is shown by the experience of Victoria, where in no instance during recent years has the disease spread beyond the area of the actual outbreak. This has been accomplished by a rigid quarantine of the affected area, the slaughter of all diseased animals, and the inoculation of all cattle in the immediate district. Victoria, with an export of dairy produce amounting to some two and a half millions sterling annually, does not deem it necessary to impose quarantine regulations on stock imported into the State, whether for beef or any other use, as it is considered that the risk of isolated outbreaks and the loss caused thereby is more than compensated for by the advantages derived from the free introduction of stock.

Pleuro-pneumonia has not prevented the rapid development of the dairy industry in Victoria, New South Wales, or Queensland, and if the precautions I have suggested are rigidly adhered to the risk that our stockowners and dairymen will run will be slight when compared with the benefit that will be derived by the State as a whole by the encouragement and extension of the dairy industry.

Mr. D. T. Jones (Yolla) moved, "That this conference is in favour of the scheme as outlined by the Director." He (Mr. Jones) came from a dairying district, and they were confident if the Director's views were adopted great advantage would accrue to the North-West Coast and King Island.

Mr. A. Bertram (King Island), in seconding the motion, said that the lack of shipping facilities from the island was responsible for not all the delegates attending. Continuing, he said: We are making no secret of the fact that we are strong advocates for the removal of the quarantine restrictions off dairy heifers entering Tasmania and King Island under certain conditions, and we are convinced that until these irksome restrictions are removed Tasmania must take a back seat as far as real progress in dairying is concerned, as she will not be able to keep pace with the States which have discarded these restrictions to their immense advantage, as evidenced by the prosperity and magnitude of their dairying industries at the present day. In speaking as King Islanders, we may state that the position on the island is a most serious one at the present moment, and unless something is done almost immediately in connection with the restrictions the island will receive a blow from which it will take a long time to recover. No doubt a great number of you are aware that the principal and practically the only industry on the island at the present time is the fattening of cattle. Owing to heavy freight and other drawbacks King Island fat cattle are unable to compete with Tasmanian fat cattle during the whole 12 months of the year,

the selling period being restricted to about three months out of the twelve, when Tasmanian fats are scarce. King Island during this limited period practically monopolises the fat cattle market of Tasmania; but should the islander miss the market during these three months, he must hold his cattle over until the following year. The same thing happens if there should be a surplus of fat stock during the three months before mentioned. Besides this, there is another and more serious aspect to the position, and that is this: 2500 head of cattle will supply all the beef required in Tasmania during the three months mentioned, and last season King Island supplied that number. What is going to happen if King Island or some other place fattened an additional 500 or 1000 head, which would enter into competition with the market's maximum requirements? The answer is an easy one: Now, we are fairly certain to fatten more than 2500 head of cattle on King Island this year, and the question arises, what are we going to do with these additional fat cattle? The solution of this difficulty, to our minds, is dairying, and dairying only, and the question arises, How can we introduce and increase this new industry at a minimum of risk?—for there is certain to be some risk. But are not the immense advantages to be derived from this important and profitable industry worth some risk? The islander, on an average, makes about £3 per head as profit on the fattening of a beast. This beast eats the same quantity of fodder as a dairy cow, which would turn in about £10 per year to its owner, and if the skim milk is turned to account for pig-raising purposes, then £12 10s. per year would be nearer the mark. We maintain that these facts speak for themselves; but so far as we can see the only thing which we can do until these quarantine restrictions are removed is to "mark time." On King Island we have thousands of acres of magnificent and prolific dairying country, capable of growing the best kinds of milk-producing fodder grasses for 10 months out of the 12. The greater part of this grass is at present wasted, and most of the balance is used for fattening purposes. Last season some of our selectors could not give their grass away. There must be something radically wrong when that sort of thing occurs. We feel certain that we are in a position at the present time to successfully dairy 10,000 head of cows on the island; and this would mean employment for at least 150 families. We appeal to our legislators to bear this hard fact in mind. One can easily imagine what the difference in profit would be in milking 10,000 cows and fattening a like number, not only to the owners of the cows, but to the State generally. Prosperity must follow in the footsteps of dairying if conducted on up-to-date lines. The other States have been bolder than Tasmania in regard to their quarantine laws, and the result has proved most satisfactory and pleasing. Take the State of Victoria, for instance. The value of her dairying industry for the year 1910 amounted to £5,417,506. This industry has had a fairly rapid growth, because we find that during the season 1889-1890 the value of her butter export business was only £50,300, while last season it amounted to £2,625,000,

or a total export of 251,435½ tons for the last 21 years, and having a value of £26,329,984. The number of dairy cattle has increased during the last 10 years from 472,940 head to 625,063 head, being an increase of 152,123 head for that period; and the number of cowkeepers has increased from 30,787 to 50,870 for the same period. The fly in the ointment with us appears to be the dread of an outbreak of pleuro. Pleuro. is a controllable disease, and is not quite so serious as some people imagine. In Victoria we find that the number of outbreaks for the last five years were as follow:—1907, nine; 1908, two; 1909, eight; 1910, eleven; 1911, three. And in nearly every instance the outbreaks were directly traceable to cattle introduced from Queensland. The total number of deaths from pleuro. for the years 1909-10-11 were 456 head, and it must be borne in mind that in connection with the figures for 1910 two herds were completely destroyed by the Department. The total number of dairy cattle in Victoria in 1910 was 1,549,640, so the percentage of deaths from pleuro. would amount to approximately one beast in 8200 per annum; and the value of these destroyed animals would be less than £1000 per annum, representing less than one farthing per head on the total number of cattle in the State. Consider this insignificant loss in comparison with an industry worth £5,417,506 per annum to a State, and what must your thoughts be as business men? During the year 1908 there was not a single case of pleuro. in Victoria for a period of nine months. The present quarantine period of 90 days is no real safeguard against the introduction of pleuro into the State, or 190 days either for that matter. Instances have been known where the disease has broken out in a beast after carrying the germs for over four years. We can quite understand the feelings and objections of a number of gentlemen engaged in cattle-dealing, breeding store stock, and others who have already raised their dairy herds up to a certain standard; but it is impossible to introduce new legislation dealing with a question of this nature without treading on someone's toes. We think it is generally admitted that it is impossible to obtain a fair number of suitable dairy cows in Tasmania without robbing Tasmania of something of which she sorely stands in need. Some people argue that we should build up our own herds; but why should we waste years and years of our valuable lives in an endeavour to build up something which, for some years at least, must prove unprofitable when we can readily obtain that something almost immediately, thereby enabling us to become revenue-producers forthwith?

Mr. W. H. Bennett (Ross) said the conference should hear the views of the Chief Inspector of Stock (Mr. T. A. Tabart) on the subject.

Mr. Tabart said that at the last conference held in the Albert Hall he was misrepresented by the Dairy Expert (Mr. Conlon) in regard to Malahide cows. He (Mr. Tabart) proceeded to give details.

The Chairman said that as head of the Department he knew nothing of what took place.

Mr. Tabart said he wished to clear himself of misrepresentation.



The Chairman said he could not permit of the remarks.

Mr. Tabart claimed British fair play. However, to show he was in the right he produced a photograph of the cows he stated at the conference were to be obtained at Malahide.

A voice: Let the matter drop.

Mr. Tabart said: "The Contagious Diseases (Cattle) Act" and "The Diseased Animals Importation Prevention Act" have been placed upon the statutes for a specific object, viz., to prevent diseases coming into the State, and to provide power to make regulations for that purpose. My views upon the working of these Acts are well known, and as Chief Inspector I cannot recede from my opinions, which are based upon a solid foundation. Parliament in its wisdom reduced the period fixed from six months (180 days) to 130 days in 1903, and further reduced it in 1909 to 90 days, or exactly to half the original time. This latter period is, I consider, unsafe, which opinion is borne out by the best veterinary authorities, viz., Dr. R. Willmot, M.R.C.V.S., Archibald Park, M.R.C.V.S., Professor Williams, James Law, M.R.C.V.S., and the Chief Veterinary Inspector of the Department of Agriculture, Ottawa, Canada, and others. Therefore the action of Parliament has removed from me any responsibility should pleuropneumonia be introduced into this State. I have, however, the great satisfaction of knowing from my persistently protesting against any relaxation of quarantine with the numerous recommendations that have been submitted, that at the present time the cattle in the State are free from pleuro-pneumonia. I have been twitted by a supposed authority that this result has not been brought about by my administration, but from my extraordinary good luck (if it is my good luck). I appreciate the helping hand that has protected the State from the introduction of a disease that has to be dreaded, and which if once established in our herds would be most disastrous, both to stock-raising and the great possibilities of the dairy industry. I gather from the repeated reports contained in the daily journals that it is probable that King Island is to be opened to the introduction of cattle from the mainland States, consequent upon their being a scarcity of dairy stock worth giving the name to in Tasmania. I may be permitted to point out that at the advent of the dairy industry in all States on the mainland and in the Dominion of New Zealand the same outcry was raised, but by the energy and determination of the dairymen to select profitable cows, they provided themselves with pure bulls of the milking-strain, so as to grade their herds for milking qualities and constitution, which many have succeeded in doing, and, having overcome what was their nightmare, are now amply provided with the sinews of wealth in the shape of profitable milch cows. Our own dairymen can follow the good example set by interstate and Dominion cowkeepers, and secure bulls of the milking strain, of which there are many obtainable in Tasmania, to build up a herd that will do credit to the herdsman who strives to work out his own

salvation, and at the same time relieve him from the degradation of seeking Government assistance to provide him with a stock-in-trade to establish a profitable business, for which the taxpayers, rich and poor, have to contribute to assist such a man who will not legitimately help himself. The Tasmanian dairymen's petition that was laid before the members of the stock conference held in Melbourne in 1909 completely answers our present position. The petitioners set forth that "the average return per cow in Tasmania is the lowest of any of the States in the Commonwealth." This information is incorrect, as the then available official figures show as hereunder; New Zealand (return per cow per annum), £7 16s.; Tasmania (Dairy Expert's estimate), £7 10s.; Victoria, £6; New South Wales, £5; Western Australia, £4. Such conclusive figures incontestably prove that the threadworn arguments and injurious statements that are made depreciating our State dairy cattle by saying that they worthless, or at least indifferent, are not verified by facts, and are only idle statements. Following up the foregoing figures, I find that the Dairy Expert (Mr. Conlon) reports that "the average butter yield in the Launceston competitions for 1908, worked out for one week, was 15·5 lb., and that the average for all the competitions from 1902 to 1910 inclusive works out at 12·7 lb. per week." Surely this is an indication that the State has (as I have always contended) the nucleus of profitable dairy herds, which only require fostering and reproduction on good breeding lines. This was supported by the Dairy Expert (Mr. Conlon), when he remarked at the conference held in Launceston on July 23, 1908: "He could say that in Tasmania they had the nucleus of one of the best dairy herds in the States." Assuming that the quarantine restrictions are for the moment dispensed with, and we take into consideration the introduction of dairy cattle from Victoria and New South Wales as a commercial proposition, the absurdity is at once apparent. The official records clearly indicate that milch cows in our State of Tasmania exceed in money value per cow per annum Victoria by £1 10s., New South Wales by £2 10s., and Western Australia by £3 10s. Following upon the above facts, it is worthy of note that Mr. James Wilson, of Lilydale, for a period of 10 years, has always in milk 12 cows, two being two-year-old heifers, and after supplying his family of six with milk and butter, the gross value per cow per annum was from £12 10s. to £15, and that when he later worked into the pasteurised cream business, he took as high as £17 10s. a year per cow; that is, when the price of feed was reasonable. It is stated that cows cannot be procured. To show the fallacy of the remarks, Mr. Munro, Warden of King Island, when he lately visited Tasmania, had a commission to select for a King Island resident five or six pure Ayrshire cows. This was an easy task, and he was also offered some grade cows which he did not require; but he informed a King Island resident, who inspected and purchased, and subsequently informed Mr. Munro that he could not have purchased in Victoria cows of the same high standard at anything

like the price—and the purchaser was a Victorian settler residing on King Island. And yet in the face of such facts, some dairymen are anxious to introduce inferior animals to those now depastured in Tasmania. It has been my desire, as also my duty, to place before the Government annually the true state of affairs regarding the danger of introducing pleuro-pneumonia into the State. The following facts will vividly indicate the present unsafe conditions should the opening of King Island to Australian importation of cattle, as reported in the daily journals, be carried out. Since the furnishing of my last annual report I have carefully collected, and now summarise, the reported outbreaks that have taken place up to date, so that the cattleowners, both herd and dairymen, may be seized with the untoward possibilities that may result to the State should such a relaxation come about. In the first place if pleuro-pneumonia were introduced, this State would forego its free interchange of cattle with the Dominion of New Zealand, they being now accepted without let or hindrance, and no quarantine; and it is important to note that the milch cows in the Dominion from official records show the largest money value per cow against that of any of the Commonwealth States, viz., £7 16s. per head annually—stock that the dairyman is clamouring for. The Hobart “Mercury” (26/9/10) reports outbreak of pleuro-pneumonia at Manila contracted by contact with imported Queensland cattle exported to the Philippine Islands, which promised to be a large one: this stopped the trade in cattle. “Farmer and Settler” (9/12/10) and “The Australasian” (10/12/10) reported in September, 1910, 2000 store bullocks from Queensland suffering from pleuro-pneumonia offered for sale at Albury. They were sold in lots: 300 went to Deniliquin, 200 to Euston, and 250 to Echuca, the balance going to different breeders. Result: pleuro-pneumonia broke out badly in the lots sold. The Hobart “Mercury” (3/1/11) reports further outbreaks of pleuro-pneumonia in Queensland cattle at Wagga—50 head were destroyed. The same paper, dated 4/1/11, again reports further outbreak of pleuro. in Queensland cattle in 75 head on the north side of Murrumbidgee. They are a portion of the lot reported at Wagga. The Adelaide “Register,” dated 15/3/11: Charlesville reports cattle from Ord River have been inoculated for pleuro-pneumonia, and that they have left again for Burrendilla station, Maranoa. The drivers were prosecuted for leaving sick and dead cattle on the road without destroying them. “The Daily Post,” Hobart (23/3/11), reports an outbreak amongst the dairy herds of Yannathan, Victoria. This is the first outbreak of pleuro-pneumonia known to the dairy farmers or the inspectors in this district. The serious nature of this outbreak is that the disease had not been previously known to the Agricultural Department, Victoria, and that the losses from inoculation by the inspectors were very heavy. The official correspondence of March reports pleuro-pneumonia having broken out in Netherlands, India, contracted from Queensland cattle introduced. The New South Wales stock

report for 1910 gives another significant fact, which is an official record published, and states sad experience during the past 12 months. There were 113 outbreaks in 24 pastoral districts. The properties were all quarantined, and 32,265 head of cattle were inoculated. Reports show that 547 died after inoculation. The list of outbreaks of pleuro-pneumonia, occurring within 12 months, is a significant warning to the authorities in this State that is at present free from the disease, not to relax its quarantine restrictions one iota, but rather to enforce greater stringency, if it be the determination of the Government to be singularly lucky in retaining its cleanliness. The jealousy of the other States is apparent when they caustically remark, "We have pleuro-pneumonia; why should Tasmania be exempt?" The frequent inoculation of infected cattle, with the constant travelling, outbreaks of pleuro-pneumonia, and interchange of cattle within the boundaries of the mainland States, is an undoubted source of danger, when cattle are introduced into Tasmania. I hold that the State, in the interest of cattleowners, is not justified in accepting any risk when there is the clean Dominion of New Zealand from which cattle can be obtained without any penalty of quarantine. It is worthy of note that if in the States like Victoria, New South Wales, and Queensland, where pleuro pneumonia is of common occurrence, with the danger and losses from inoculation of cattle and the continual spread of the disease, which is so apparent from the foregoing epitome, how much more so would the introduction of a single case of pleuro-pneumonia mean in a clean State like Tasmania, which would necessitate the adoption of the most drastic remedy to eradicate the disease, and could only be brought about by the slaughter of all diseased and affected cattle, with the slaughter of all contacts? Great Britain adopted this course of action with success, but Parliament voted annually a sum of £140,000 for England, and 20,000 for Ireland, with the employment of a staff of 2877 inspectors. The "Australasian" of 6/5/11, speaking of the block against Australian cattle entering Great Britain, remarks: "Though Australia is reputedly one of the healthiest stock-raising countries in the world, it still labours under the disadvantage of having its cattle debarred from entering Great Britain alive for any purpose whatever. Of what forms of disease the older country is in fear from this end at the finish of a long voyage one cannot say. Pleuro-pneumonia, with which most breeders have at some time or other made acquaintance here, once tuned up Great Britain to a truly alarming extent. Between 1853 and 1860 that country lost upwards of a million cattle of a monetary value of £12,000,000." This comment has a most important bearing upon the question now under discussion, for it clearly demonstrates to the Dairy Expert and the Director the danger to be apprehended by opening up King Island, and possibly Tasmania, to the reception of Australian cattle, where there is only a day intervening between leaving the shores of Australia to the landing in Tasmania. How much more probable would be the risk of introducing

pleuro-pneumonia under such conditions with Tasmania than there would be by shipping cattle to Great Britain after being subjected to a long sea trip. The Board of Agriculture and Fishery has placed its veto upon the introduction of cattle into England from Australia, being determined that pleuro-pneumonia shall not again appear, after the expense and loss incurred in stamping out the disease, and yet some unpatriotic and irresponsible element is at work endeavouring to induce the Government to accept stock from an unclean State into Tasmania, that has always been a clean State, and taint it with disease. Surely the thinking stockowners of this community will not sanction so suicidal an innovation.

Mr. P. McCrackan, M.L.C., said he intended to support an alteration of the quarantine laws, which would bring the State into line with the other States of the Commonwealth and New Zealand. He briefly traced the history of the quarantine laws in Tasmania, and the alterations made from time to time, and said he would always advocate the unnecessary restrictions being removed.

Mr. R. Laird (Mooreville-road) considered that there was no danger provided there was a proper inspection and the handling of the cattle by an expert in the other State. One half of the cows milking in Tasmania were unprofitable, and not worth £1 a head. His idea to improve the dairy cattle was to introduce a new breed from the mainland.

Replying to Mr. Laird, the Chief Inspector said he could not say why the disease had not been introduced into Tasmania.

Mr. N. Nicolson (Farmers' and Stockowners' Association) said they should be careful in grasping at the shadow they did not lose the substance. He had gathered that there was a tendency in Victoria to hush up the outbreaks of pleuro., and every precaution should be taken in this State in regard to quarantine. There were any amount of diseases in Tasmania without introducing any other. It was due to the efforts of Mr. Tabart that pleuro. had been kept out.

Mr. W. Clifford (Glenorchy) contended there were good cattle in Tasmania. He moved, as an amendment, "That the quarantine regulations as they exist have given complete satisfaction in the past, and we can see no reason for altering them at present."

Mr. L. J. Collins (Ringarooma) seconded the amendment.

Mr. Edgar (Ringarooma) supported the Director's views.

Mr. O. Ridley (Sheffield) also supported the motion, but said great caution would have to be exercised in importing dairy cattle, so that Tasmania was not made the dumping-ground for store cattle from Victoria.

Mr. A. Cotton (Farmers' and Stockowners' Association) said that dairying had gone ahead by leaps and bounds during the past year or two, and he did not see why it should not continue. There was a great future before the North-West Coast if mixed farming was gone into. Tasmania was free from pleuro., and should be kept so. If cattle were

imported from the other States with less restriction and pleuro. broke out, it would be covered up, as was done in other places.

Mr. J. Hurst (North-Western Co-operative Company) did not approve of Mr. Tabart's remarks, and took exception to the words "unpatriotic and irresponsible element is at work," as they were insulting. He contended there should be a relaxation of restrictions, so as to improve the dairy herds of the North-West Coast and King Island.

Mr. Hobbs (Ulverstone) would add to the motion, "That only *bona fide* dairymen be allowed to import the dairy cattle, and that each farm on which such cattle were placed be a quarantine-station for 12 months." There were not the opportunities here for dairymen to improve their herds.

Mr. W. H. Bennett (Ross) was not against the importation of animals, but every precaution should be used. Parliament had passed a sum of money for the upkeep of animals while they were in quarantine. If the Government was anxious to foster the industry, let them pay the quarantine expenses. What would it matter then whether the animals were there for 30 days or 90 days? No period was a guarantee against pleuro. It might break out in 12 months or two or three years. One expert in the Tasmanian Department said one thing about quarantine, and another exactly the opposite. The dairy industry could be fostered better by selection in breeding.

Mr. S. Margetts (Upper Flowerdale) said that over 5000 head of cattle were yarded at the recent Wynyard show, and this showed the importance of the district. He thanked the Director for the important information, and also Mr. Tabart for his statement. They were all afraid that pleuro. was a serious disease, and thankful it was not here. Dairying was an important industry in Tasmania, but they were not agreed as to the supply. They were told there were plenty of bulls in the State, but very few heifers. He felt justified, on behalf of the people he represented, in supporting the motion. Under Mr. Benson's suggestion there would be no trade for the dealer, but it was opening the way for the importation of dairy heifers at the least possible expense. The motion protected all classes of the community, and he had every confidence that it would be carried.

Mr. T. R. Addison (New Ground) spoke in favour of the motion.

Mr. W. W. Tankard (South Springfield) dealt principally with pleuro., and asked if the risk of its introduction was worth taking. They should pause carefully before doing anything that would tend to it breaking out in this State.

Mr. M. Holmes (Ringarooma) said he had taken 10 years to build up his herd, and he had done this by culling. Why should all dairymen here wait for such a time if by removing the restrictions pure cows or heifers could be introduced?

Mr. T. Bingham (Tasmanian Dairymen's Association) gave his experiences as a dairyman, and contended that the time taken up in building

up his herd to the present standard was too long. He was strongly in favour of the terms of the motion. He did not wish to run down the dairy cattle in Tasmania, but the numbers were too few, and could not go round.

Mr. J. Belton, M.H.A., said he was pleased with the Director's attitude in connection with the question, and he congratulated Tasmania on securing a live agriculturist. He hoped his recommendations would be adopted by Ministers. Regarding King Island, it was said they were going to work into the hands of the speculators. But those with names which were household words in Victoria had brought the dairying industry of King Island into such prominence, and he was sorry that such remarks had been made. The question, in a nutshell, was, "Is the industry worth establishing in Tasmania?" Any amount of people would go over to King Island and settle if they could take their herds with them. He was for 20 years dairying in Victoria, and it was news to him when he came to Tasmania to hear of the danger of pleuro. in this State. He had never heard of it. Surely Mr. Tabart would withdraw the last paragraph in his speech referring to unpatriotism.

Mr. G. M. Barnard (Tasmanian Dairymen's Association) reviewed the efforts made by the defunct Launceston Branch Board of Agriculture to deal with quarantine, and said the suggestions made by the Director would meet the case. At the present time there were not the cattle in Tasmania, although there were a few good herds. The *bona fide* dairyman required every encouragement, and he heartily supported the resolution.

Mr. A. T. Bonney (Gunn's Plains) gave his experience as a dairyman in purchasing cows. He had obtained several, but they did not come up to the standard required. He noticed in purchasing that the older the cows the better they were. This showed that there was something wrong. As a matter of fact, instead of breeding dairy cows, the dairymen were breeding beef cattle. Eighty per cent. of the dairy cows and heifers were only fit for the fattening paddock. He had tried to grade with the best cattle he could obtain in the State, but without success. As to quarantine, the regulations contained in the Director's suggestions safeguarded the State in every way. The present restrictions were crushing the industry, and the sooner they were relaxed the better it would be for the industry.

Mr. H. Reed (Logan) said he was one of the largest graziers in Tasmania, and he was entirely in accord with the Director's suggestions. Personally he would go much further, but at present it was a very good start. From the success that attended dairying in the other States even greater results could be obtained in Tasmania. He did not feel in a position to say what period of quarantine was necessary, but when they appointed an expert they should take his advice and abide by it.

Mr. A. Coplestone (Scottsdale) said large areas of land were being opened up, but no dairy cattle were available for them. In his district.

the other day there was a sale of cattle, and an old cow brought £7 10s. The seller admitted that he had learned to milk on that cow 20 years ago. What was wanted at the head of the Stock Department was a duly qualified veterinary surgeon.

Colonel Legge (St. Marys) would support the importation of dairy cattle, with certain reservations. That was that they should be imported into a certain reserved area, say the North-West Coast, and then it could be seen if the disease manifested itself.

Mr. L. M. Shoobridge (Tasmanian Fruitgrowers' Association) said that the presence of Irish blight on the North-West Coast had driven the farmers to dairying. Tasmania was free from disease, and they should certainly go carefully in removing any of the restrictions. At present a dairyman had to wait 90 days before he got the animal on to his farm, but a fruitgrower, after planting a tree, had to wait nine years for the fruit. The Government could assist the industry by reducing the quarantine expenses.

Mr. Plummer (Circular Head) said it seemed that the matter of quarantine was based on King Island requirements. [No, no.] He also said no. It was said that dairying was the future of Tasmania; but he contended that mixed farming would be the future, with dairying at the head. It seemed to him that it was absolutely necessary to allow the period to lapse under the system suggested by the Director.

Mr. P. Tucker (Scottsdale) moved that the question be put.

It was decided, however, to take further discussion.

Mr. J. McHugh (Riana) said he was opposed to any alteration in the quarantine restrictions. Tasmania would be flooded with heifers, and when they got here they would be found to be very little better than the local animals. The Launceston show pens showed the cattle here were equal to, if not better than, those on the mainland. He did not think 90 days too long for quarantine. He had been a successful dairyman, and contended they could find good cattle here. The Government could assist the industry by voting, say, £5000, and paying the expenses of quarantine.

A delegate: No hope in the world.

Mr. McHugh said that, having heard the Director's views, he was inclined to waive his objection.

Mr. H. Foster (Midland Agricultural Association) said they should not be carried away with enthusiasm. They did not want a new strain, but a new strain of breeders.

Mr. W. H. Room (Pardoe) supported the Director's suggestions.

Mr. Jones, the mover of the motion, replied to the debate.

A vote was then taken, and the motion was carried by an overwhelming majority.

Mr. W. York (Sheffield) referred to butter being placed on the English market. He said that steps should be taken to have it placed there all the year round.



The Director said he would get Mr. Conlon into touch with those interested to see if a better method could be obtained for extending the distribution.

Mr. S. Brumby (Cressy) referred to the necessity for encouraging the industry.

The Director said this opened up the question of a Dairy Encouragement Act, a measure which was in operation in the other States.

Mr. Brumby moved, "That, in the opinion of this conference, the Government be approached to erect silos for dairying, on the deferred payment system, such payments to be spread over a number of years."

Mr. H. A. Nichols (Ulverstone) said this opened up the question of a State bank.

The Director said that Mr. Brumby, of King Island, would be present on the forthcoming day, and intended moving in the direction of a State bank. He suggested that the motion be deferred.

This was agreed to.

Mr. Laird (Burnie) moved, "That all dairy bulls be registered by the Department of Agriculture, and a charge of £1 be made."

Mr. Clifford seconded.

Mr. Plummer (Stanley) moved as an amendment, "That all bulls be registered, but those not passed by the Department be charged £1."

Mr. McHugh (Riana) considered the farmers were taxed quite enough already, and did not think it a fair suggestion.

Mr. Jones (Yolla) seconded the motion.

Mr. Hobbs (Ulverstone) did not approve of either the amendment or the motion.

Mr. H. A. Nichols supported Mr. Hobbs. The various municipalities could impound the mongrel bulls, and heavy penalties could be enforced.

After further discussion, the matter was allowed to drop.

Replying to a question, the Director said the Department did not tax dairymen. All factories must pay £1.

Mr. Margetts (Upper Flowerdale) said they should have the right class of cattle, and moved to the effect that as soon as the Government farm was an accomplished fact one of its primary objects should be rearing dairy cattle, and then a drafting of a scheme by which people could purchase them to build up a dairy herd.

Mr. W. T. York (Sheffield) seconded, and asked if the Director was in favour of Mr. Conlon residing in the North.

The Director said Mr. Conlon's services were for all of Tasmania. The State farm question would be taken on the following day, and this matter could be threshed out.

The matter then dropped.

Mr. Plummer (Stanley) referred to cheese-making and conveying the whey to the factories.

The Director said the difficulty could be got over by pasteurising the whey. It was a technical question, and would be discussed with the Dairy Expert.

Mr. J. Moore (Marrawah) said he had shipped 11 tons to England, and had looked after the sterilising.

Mr. J. Edgar (Ringarooma) urged the appointment of Government dairy supervisors, and moved to that effect.

The Director said it was not necessary to put the motion to the meeting, as dairy supervisors would have to be appointed under the Act.

Mr. J. McHugh (Riana) said it was hoped that "The Dairy Act" would not be made too severe.

The Director said the measure would not attempt to crush the industry. What was aimed at was to produce a first-class article.

Mr. Hurst, M.H.A., referred to the necessity for compulsory grading.

The Dairy Expert (Mr. Conlon) said he was entirely in support of compulsory grading of cream, but the great difficulty was the disloyalty of factory managers. They were watching what Victoria was doing.

Replying Mr. Plummer said the whey should be sterilised to 185 by steam pipe.

Mr. Hobbs (Ulverstone) dealt with winter dairying, which he contended would not pay in Tasmania under present conditions and present prices for butter.

The Director replied that he had dealt fully with the subject in his paper that morning, and had pointed out how it could succeed. He also explained the successful system adopted in Denmark.

Mr. H. Robinson (Frankford) said the potato blight had been a blessing in disguise, as it had turned attention to mixed farming.

#### THE POTATO INDUSTRY.

The Director said the whole question of the potato industry was thoroughly discussed at the Ulverstone conference, and Mr. H. A. Nichols, M.L.C., was deputed to submit the resolutions arrived at to the conference. Mr. A. M. Lea, the Government Entomologist, who, he was sorry to say, was leaving the State, had prepared an excellent bulletin on the subject, which would be issued to farmers. Briefly, Mr. Lea considered that the spraying had been beneficial. Mr. A. McGaw, of the Van Diemen's Land Company, had written showing the efficacy of spraying potatoes, the returns of those treated being much greater than those not sprayed. He had come to the conclusion that spraying decidedly paid. Another unsolicited testimonial had come from Mr. J. T. McKendrick, of Palooka, who had been very successful with the spraying. An unsprayed paddock had been left, and this was badly affected with the blight. What had proved the saviour of potatoes in other lands must also be successful here. In the West of Ireland, the Director said, last year there were 4000 spraying-machines. There had been failures, but the general tendency had been satisfactory. He was not in favour of making spraying compulsory at present, as he wished to carry out a complete system of experiments.

Mr. H. A. Nichols (Ulverstone) submitted a motion from the Ulverstone conference to the effect that, in the opinion of the conference,

spraying was beneficial, and as further experiments were required it was not advisable to make it compulsory at present.

Mr. R. Creighton (Kettering) seconded the motion, and gave his experiments in spraying. They should start early and use the proper spray. If it was worth doing it was worth doing properly. What he used was 6 lb. bluestone, 9 lb. soda, and 40 parts of water, using 130 gallons to the acre.

The Director remarked that in his experiments he used 90 gallons to the acre with an up-to-date sprayer.

Mr. Laird considered that bluestone alone should be used—using it of sufficient strength with water.

Mr. L. Collins (Ringarooma) suggested that experiments should be made to decide whether compulsory spraying will be necessary.

Mr. T. Tyler (Stoodley) related experiences as to spraying.

Mr. Plummer considered that the mixing of the solution had a great deal to do with the result.

The motion was carried unanimously.

A vote of thanks was passed to Mr. McGaw and the other visitors for the information they had given the conference.

Mr. O. Ridley (Sheffield) suggested that the experiments should be made public, to be an object lesson to farmers.

Mr. Nichols moved, "That the conference endorse the other motions adopted by the Ulverstone conference."

Mr. Hurst, M.H.A., seconded the motion, and said that, regarding Irish blight, it was very prevalent in West Australia. There was not a greater piece of humbug than West Australia saying that they were doing all they could to keep out the blight. It was time some action should be taken by the Tasmanian Government to see if a better market could be obtained for potatoes.

Mr. H. H. Evans (Meander) said he wished to refer to misstatements in the "Examiner."

The Director ruled the matter out of order.

Mr. Boatwright (Latrobe) supported the motion, which was carried.

Mr. C. I. Knight (Frankford) moved, "That in the interests of potatogrowers local inspection should be abolished, and potatoes sold on their merits."

Mr. T. McDonald (Thirlstane) seconded.

Mr. J. B. Hays (Scottsdale) supported the motion, and said it was not right to say that Irish blight in Tasmania was disseminated through old bags.

The Director said that clean districts should be protected by not allowing unsterilised seed potatoes to be taken there from infected districts, and suggested that this be added to the motion.

The mover accepted the suggestion.

In the course of a discussion the Director said that the resolution was not meeting the object aimed at.

The motion, as amended, was adopted.

At this stage the conference adjourned till 10 o'clock next day.

## Second Day.

### THE POTATO INDUSTRY.

The Chairman (Mr. A. H. Benson) stated that when the conference closed the previous night they had completed the discussion on the potato industry, on the subject "The Best Methods to be employed for Combating Potato Disease," but it had been the wish of several that the discussion should be reopened.

Mr. J. McHugh (Riana) moved, "That this conference recommends the Government to purchase sprayers and sell them to the farmers at cost price and on easy terms." Farmers recognised that the sprayers would be of great benefit to them, but many could not purchase them.

Mr. C. C. Polden seconded the motion.

The Director said they would shortly discuss the question of an agricultural bank, and this matter could then be taken. The experience the Government had had in connection with sprayers so far had not been satisfactory.

Mr. McHugh: The people could not work them.

The Chairman said he would admit they were not the best, but an expert had taken the matter in hand.

Mr. W. Morris (Ridgley) moved, "That in the opinion of this conference the Government be asked to remove the restriction on seed potatoes from England."

Mr. F. Hyland (Elliott) seconded the motion.

The Director said it was not a matter for the State Government, but it came under the operation of "The Federal Quarantine Act." But if it was the wish of the conference he would transmit it to his Minister for conveyance to the Federal Government.

Mr. Hyland said his Board considered that the Government should import a quantity of seed, and had asked him to submit a motion to that effect. He had £15 or £20 promised to invest in a new variety of potatoes.

It was decided to take both as one motion.

Mr. H. A. Nichols, M.L.C., said he was not in accord with the resolution. He had grown the Eldorado potato, which was one of those suggested to be imported, and would not give a penny for it. There was a far better variety grown here—the Commonwealth. There were diseases even worse than the Irish blight, and they should take care they were not introduced. He considered that the Government should take steps to raise varieties for seed in Tasmania, and if any disease was manifested, then the variety could be destroyed. This would be the only safe way to stop the introduction of any new disease.

Mr. R. Creighton (Kettering) was opposed to the importation of seed potatoes into Tasmania. He instanced the introduction of black scab in potatoes in England from Algiers, which had come under his notice. Endeavours were made to confine it to the small areas where it was first

discovered, but without success, and it had spread over a large part of England and Scotland.

Mr. R. Laird (Mooreville-road) contended that it would be unwise for any State of the Commonwealth at the present time to import seed potatoes. The introduction of the Irish blight into the Commonwealth was due to a shipment of potatoes six years ago, which had arrived at Newcastle from America. [Voices: Question.] He would swear to it. A box of those potatoes were planted near his farm, and the blight had broken out. Mr. Chalk, a neighbour, sent to Scotland four years ago for half a ton of the best potatoes. The first year they promised favourably, the next year they went off, and the third year he would give them away to any who liked to take them. Mr. Laird then produced samples of several varieties of potatoes, and contended that the redskin was the best.

Mr. Plummer (Circular Head) said to import potatoes from overseas would not be at all fair. Irish blight had not been in the State for more than two years. [A voice: You have been asleep.] He strenuously opposed importations when the experiments were carried out on, say, Lord Howe Island. The secret of the red potatoes was that they covered up defects. [Voices: No.] The redskin potato had been a good friend to Tasmania, but the whiteskin was coming into favour. It would show defects, yielded well, and as an article of diet was all that could be desired.

Mr. Clingeffer (North-Western Co-operative Company) opposed taking any risk by the introduction of imported seed potatoes, more especially as such good varieties were at present raised in the State.

Mr. J. Hurst, M.H.A., said he had tested in West Australia redskin potatoes grown in Tasmania and white potatoes of local production, and there was no comparison between the two, the Tasmanian being far and away the better.

Mr. Bertram (King Island) said the island was a clean district, but the blight would no doubt make its appearance, as they had to import from the mainland. What they would like was for the Government to import clean seed.

Colonel Legge (St. Marys) contended that it would be better to keep to the good varieties at present grown in the State.

Mr. Young (Longford) suggested that experimental plots should be established.

The Chairman said there were two questions in the motion. One was that the State should raise blight-resistant tubers. This could be done. The other was outside the conference; but if the Commonwealth introduced new varieties they should be kept under surveillance in order to guard against such diseases as black scab. He would suggest that in the opinion of this conference the Minister of Agriculture be requested to communicate with the Federal authorities with the view to the introduction of approved and blight-resistant potatoes, to be grown under conditions which would absolutely prohibit the introduction of disease.

Mr. H. H. McFie (Devonport) considered that Tasmania was capable of dealing with the matter, and the Government should propagate a blight-resistant stock from experimental plots. These latter must be established, and the conference should insist on their being established within 12 months.

The Chairman said that the whole matter of an experimental farm would be considered later.

The motion as outlined by the Director was carried unanimously.

Mr. C. C. Polden (Kindred) moved to the effect that this resolution be embodied in those which were to be brought under the notice of the Federal Ministers.

Mr. H. A. Nichols, M.L.C., explained that certain resolutions were presented to the Minister of Agriculture (Mr. Hean) on the previous night, and a deputation would shortly leave for Melbourne to interview the Federal Minister on the subject. This resolution could also be taken by the Tasmanian delegates.

Mr. R. Hilder (Ridgley) seconded the motion, which was carried.

Moved by Mr. F. McHugh, and seconded by Hon. H. Nichols, "That in the opinion of this conference the Government should take steps to test new varieties submitted for approval by the raisers.—Carried.

#### AGRICULTURAL ORGANISATION.

The Chairman, in introducing the subject, said that this conference was the outcome of organisation. They all knew his ideas on the subject. He submitted a scheme to the Minister some time ago respecting the establishment of an agricultural farm and school, and he trusted within a short while to receive instructions to proceed with the work. It was not intended to go as far as a high-class agricultural college, such as those on the mainland. These were expensive establishments, and doing good work, but in Tasmania they should walk before they commenced to run. The farm proposed to be established was one in which a little agriculture, fruitgrowing, and forestry would be undertaken. The work would be of a practical nature. He purposed using the services of the experts to give a series of lectures on one and every branch of the agricultural industry on which farmers required information. The question of seed potatoes would be taken up, and the results published. Those worthless would be cast aside, and tests confined to the best sorts. The scheme that had been outlined had been submitted to the Boards of Agriculture, and they expressed their sympathy with the movement, and he would like the opinions of those present.

Mr. L. M. Shoobridge moved, "That the scheme for an experimental farm, as outlined by the Director, be adopted." He said the Council of Agriculture had moved in this direction. The application of manures should be one of the primary objects of the farm, as at present many farmers did not receive the results that they should. It was the wish of all agriculturists to have a demonstration farm—to demonstrate what

had already been found in other countries. He hoped Mr. Benson would be able to show them what could be done on the farm. He (Mr. Benson) had wide experience, and was quite capable of conducting such a farm.

Mr. A. Boatwright (Latrobe), in seconding the motion, said the matter had received favourable consideration from the Council of Agriculture. The farm should be on land capable of producing every kind of crop, close to a railway, and as near as possible to the centre of the island.

Mr. Hurst, M.H.A., in supporting the motion, said a similar resolution was passed at an agricultural conference at Devonport four years ago, but Mr. Benson was not then in charge of the Department. He would like to see the matter go further, and establish an agricultural college.

Mr. W. Clifford (Glenorchy) expressed the hope that the motion would be carried.

Mr. H. A. Nichols, M.L.C., said a similar motion was passed at the Ulverstone conference, and he had been deputed to submit it to this gathering.

Colonel Legge said he had always advocated an experimental farm, which had so many times been discussed by the Council of Agriculture. He heartily commended the scheme to delegates.

Mr. G. M. Barnard said the motion was an old grind. The institution of an experimental farm would be very beneficial to young immigrants who desired to settle in Tasmania. At present they could not gain experience unless taken on private farms. The press in Tasmania had done a great deal for agriculture, and he would like to see Departmental reports published in the daily papers, and not confined to the agricultural journal, which many did not open, although he must say that it had been improved.

Mr. H. H. McFie (Devonport) said that Tasmania was the only place where there was no agricultural education.

Mr. H. Robinson (Frankford) said the "Agricultural Gazette" was only confined to Branch Boards, but it should be enlarged and made available for every producer in the State. They all recognised what the Council of Agriculture had done, but its usefulness had been impaired through the want of an official head.

Mr. R. Laird (Mooreville-road) said the "Gazette" has a great deal of valuable information, and is one of the finest publications of its kind, and if it were available to Branch Boards, why should all agriculturists not join some such organisation.

Messrs. T. McDonald (Thirlstane) and W. H. Connor (Queenborough) supported the motion.

Mr. M. Nichols (East Mersey) said he was a member of a Branch Board, but it was over six months since he had seen a copy of the Departmental publication, although frequent application had been made for it.

The Editor (Mr. L. A. Evans): Your secretary has been in the hospital.

Mr. Nichols: Yes, but previous to going there he had written for it.

Mr. O. Ridley (Sheffield), in supporting, said that many State schools were giving the first principles in agriculture, and were deserving of every commendation and assistance.

Mr. S. Shoobridge enquired the reason effect had not been given to resolutions passed at conferences. They should show a united front.

Messrs. J. McHugh and Young supported the motion.

Mr. L. M. Shoobridge said it would be unwise to discuss the locality of the farm, as each would want it in his own particular district. It would be far better to leave it to the Director.

The Chairman said he was glad to get such a unanimous opinion in support of the motion. As to the question of general education, they were handicapped now by not having a proper place to carry it out. Last year they had to go to Pardoe for the dairy schools, and this should not be. As to State school teachers, in New South Wales they were taught the simpler rudiments, which they imparted to the scholars. As to the farm itself, he wished to make it as far as possible typical of Tasmania. The primary factor in the selection of a site was that it should possess all the required soils. It should be on a railway-line, and the several other questions would have to be taken into consideration. If they left the matter in his hands he would do all he possibly could.

The motion was carried unanimously.

#### FARMERS' EXPERIMENTS.

The Chairman said that the next subject for discussion was "Farmers' Experiments." To carry out experiments in districts was the best education for the farmers. It was to this end that the Boards of Agriculture had been reorganised in Tasmania. As head of the Department he could not succeed without he had their sympathy. About £200 had been spent this year by the Department on spraying experiments. He hoped to receive suggestions as to the best way of carrying out experiments.

Mr. C. I. Knight (Frankford) moved, "That every facility and encouragement be given to farmers willing to carry out experiments under the control of the Director of Agriculture." Many farmers would be unable to attend the experimental farms. The soils in the various parts were so different, and in these experiments the back-blocks man would receive consideration.

Mr. G. M. Barnard, in seconding, said that many farmers would carry out their experiments for nothing, and as conditions were so varied in different districts, great good would result. Grass that would flourish in one part would do no good in another.

Mr. H. Shoobridge considered that farmers' experiments were the most useful of any part of educational work the Department could take up. There should be tabulated records of the experiments carried out in Tasmania. The farm should be in the centre of the State, from which the experiments could be worked, and they would have there the different climatic and soil conditions.



Mr. T. Tanner (Carnarvon) and Mr. W. Clifford (Glenorchy) supported the motion.

Mr. A. E. Moore (Barrington) considered that experiments should be made on the eradication of blackberries.

Mr. H. A. Nichols supported this suggestion, as he had one blackberry patch that covered 50 acres.

Mr. Brumby (King Island) said the value of experiments in a new district such as King Island could not be over-estimated.

Mr. J. Telford (Table Cape) referred to experiments with the blackberry pest, it being eaten down by sheep.

Mr. S. Shoobridge suggested that experiments should be made with all noxious weeds.

Mr. O. Ridley (Sheffield) said the blackberry was one of the most serious pests the farmers on the North-West Coast had to contend with. The subject was of such importance that it should be included in the agenda paper.

The Chairman would like to receive suggestions as to dealing with noxious weeds.

Mr. T. R. Addison (New Ground) said in many instances the farmer was too lazy to take steps to eradicate the blackberry pest. He then proceeded to speak on winter fodder for sheep.

A general discussion then ensued, in which several delegates gave experiences of Angora goats in eating down blackberries, in every instance the animals eventually eradicating the pest.

Colonel Legge referred to experiments with grass, and hoped, when the experimental farm was instituted, special attention would be paid to *Phalaris commutata*, which had been most successful.

Mr. D. T. Jones (Yolla) dealt with the necessity for experiments.

The Chairman said he was prepared to supply limited quantities of grass seed to Branch Boards. He was also prepared to experiment with the eradication of blackberries, on lines similar to dealing with the prickly pear in Queensland. He would cut them down, and then spray repeatedly with arsenate of soda, to kill the roots. He would not say that he would succeed. There was a danger of stock getting on to plots and eating the young shoots.

#### STATE AGRICULTURAL BANK.

Mr. Brumby (King Island), in introducing the subject of a State Agricultural Bank, said that some delegates from King Island had been struggling for 15 days to get to the conference, and he had only arrived that morning. He did not expect to be called upon to introduce the subject so early in the day. He would move, "That this conference asks the Government to institute inquiries as to the working of agricultural banks, and when such investigation had been made, to consider the desirability or otherwise of bringing the matter before Parliament." If they would keep the young men in the island they would be accomplishing a good work, but they wanted also to attract population, the

same as the other States were doing. When taking up land men find that the cost exceeded their anticipations, and it was difficult to get capital to utilise that land. The West Australian Act had been the means of land hitherto neglected being made a valuable asset to the State. This would be simply a recommendation from the conference to the Government.

Mr. Hurst, M.H.A., in seconding the motion, said at present there was an "Advances to Settlers Act" on the statute-book, but it was not workable. He suggested that the motion should be amended, so as to make it more on the lines of an agricultural bank to assist settlers. He reviewed similar Acts in operation in other States, pointing out how widely they assisted the settler. It was well that something more in that direction be done for the settlers in Tasmania than in the past. He could not say they could go so far as they did in West Australia at the present time, but they could assist the settlers in the back-blocks. He did not see why the Tasmanian Government should not proceed on the same lines as Victoria on loans for silos. The cry was no money, but the money was not being given away.

Mr. Brumby agreed to have the wording of the motion altered, so as to make it an amendment on "The Advances to Settlers Act" to help the settlers.

Mr. J. Belton, M.H.A., said it had always been incomprehensible to him why the Government of Tasmania had not come into line in this matter with those of the other States. The young men were leaving the land because they could not get the inducements which the other Governments were offering. A really comprehensive Bill was required. It was a wise Government that put the people on the land, but it was a wiser Government that kept them there.

The motion was carried unanimously.

#### MARKETING OF FRUIT.

Mr. H. Shoobridge read the following paper on "The Marketing of Fruit," prepared by Mr. W. E. Shoobridge:—

"The selling of fruit is a serious matter for growers. It is not much use producing unless we can get a fair return for our labour. In order to turn apples into money, we must find people able and willing to buy. Methods of marketing are improving so much that unless we can keep up with the procession we shall get left. One of the most important items is evenness and regularity of grading. We have to meet many classes of buyers, and if we do not suit their various wants we cannot get the best returns. In my report of the English market, in 1905, after three months of careful inquiry into the whole of the trade, I said, 'One of the first things is even grading. There are such different classes of buyers, that we need to study the requirements of each, and when they find that all of the same brand and mark can be depended on to turn out an even sample, they will bid more freely. In mixed samples, they only bid on the worst, and in some cases they will not bid at all. Specific

buyers only require a certain sample, and the rest are not wanted. This is especially the case with those who buy for the best shops, and who will give the highest price for uniformly good fruit. Those who bid for smaller apples are quite a distinct class, and will give more for an even sample of small than for mixed. Clean, bright-coloured fruit will always sell, if graded and marked, so that buyers may rely on the quality. . . . 'I believe, when growers realise that the price they get for their consignments depends upon the grading and quality of their fruit, that a higher standard will be maintained. . . . 'We do not realise here the different classes of customers that have to be catered for, but we must help the agents by preparing our fruit so as to be sold at the greatest advantage.' Mr. George Munro, the leading commission seller of Covent Garden, said in a letter to me on the London market: 'Grading.—I quite agree with you in the necessity of careful grading, as we find some customers want nothing but No. 1 (or large apples), while others can use and pay a good price for the smaller size. The net result on properly-graded fruit always comes out better. Distributing as we do, all over the country and abroad, it is more important for us to have them properly graded than it is for those who sell by auction. We never have to do this.' Messrs. Nothard and Lowe, one of the largest sellers of Canadian apples, endorse what Mr. Munro says, and say: 'It is most unwise to mark apples, "Selected," "Extra," or anything of that kind, unless they are up to the standard marked, and as some buyers prefer small apples, a distinctive mark should be put on them.' Messrs. Knill and Grant, auctioneers, of Monument Yard, say: 'We cannot too strongly recommend shippers to grade their fruit correctly, and as far as possible to give buyers such confidence in their mark that if the boxes contain small, medium, or bold fruit, buyers can depend on finding only fruit of this description all through the package, and we have not the slightest doubt that shippers will reap a decided benefit from following this method uniformly; but the buyer of bold fruit does not require small, and *vice versa*.' Messrs. Woodall and Messrs. Connolly and Co., Liverpool also agree with thorough grading, and, after naming several of our leading sorts, say: 'Any large, coloury apple is suitable for Liverpool.' It is necessary to have large lines of even grading, to prevent waste of time in sorting, handling, and selling. If we want to maintain a standard of value, we must have a standard of quality. At present we have several hundred growers, and the number is increasing, and however they may try to grade, it is certain they cannot get the even quality. In distant markets buyers do not trouble about individual names. They may know a few of the large brands, but the bulk of names are unmeaning. They are only concerned as to the grade and quality of what they buy. We know in our own experience in stock sales the difference of grading, if a large lot of, say, 500 even sheep are put up, a price is soon

fixed, as the highest for the day, and they are then divided up in small lots to the various buyers; but if they are in 15 or 20 little lots, from various sellers, you cannot maintain as high a price all round. It is just the same with apples. A large even lot will command the highest market rate, and will be quickly divided up among all who need that quality at the same price. The bargains (for buyers) are made out of small lots, and they help to bring down the market rate. The only possible way to get this even grading of large lots is by district packing sheds, handling at least 50,000 cases for the season. A capable manager, with staff of expert graders and packers, could receive all the fruit grown in the district, and make up as many grades as might be found necessary, only packing good, marketable fruit. All the rest could be made use of by either drying, pulping, or cider-making, so that not an apple should be wasted. There would be only one carriage of fruit—to the shed—and by being near a station or wharf, a second carriage would be saved. The inferior fruit could be dealt with on the spot, and would realise a great deal more than if put on the market in competition with marketable fruit. One has only to go through the orchard districts at picking time to see the very large percentage of waste that might be made to give a profitable return, and would no doubt pay the whole cost of running the shed. Of course, no grower doubts the advantage of such a system, which, indeed, is no theory, but the most successful method of handling large quantities of fruit. But—there are always buts—how are we to get it done? Growers do not like to be interfered with, and each one thinks he can grade and pack his own fruit better than anyone else. When 400 growers try this, they make 400 different grades. I suppose it does not really matter to growers how it is done, so long as they can get the most money. If a grower sends 100 cases, and 40 are first grade, 40 are second, 10 are third, and 10 inferior; then, if No. 1 averages 5s., No. 2 4s., No. 3 2s. 6d., and inferior 1s., he would get just what his fruit was worth. Another grower, out of his 100 might get 20 first, 40 second, 20 third, and 20 inferior, and he would get full value; but I think he would try next year to get more of No. 1. At least, that is the general effect. With, say, 20 brands, instead of 400, the whole system of marketing would be simplified and concentrated, with better returns for growers, and a more reliable article for the buyers. I believe the only satisfactory way of getting it done is through the State or municipality—preferably the State, because it would ensure more uniformity, and could be followed up with an export agency here and at the selling market, that would safeguard growers' interests until their fruit was actually sold to customers. Of course, there are objections to State interference, as it is called, but I should call it State assistance; and as we all have a hand in appointing the managers of the State, it is our own fault if we do not put on suitable men, and, of course, like the Yankee's politics, 'if they don't suit, they can be altered.' The most successful

instances of the business of grading and making ready for market are run by the State. So it can be done, if we agree to think it ought to be done." He moved, "That this conference ask the Government to erect and equip a packing-shed, as an experiment, in the first district to apply for one, and will give a guarantee to ship the requisite quantity of fruit therefrom."

Mr. L. J. Collins (Ringarooma) seconded the motion.

A delegate considered that the packing-shed should be erected as near to a deep-water port as possible.

Mr. S. Brumby (Cressy) supported the motion.

Mr. Haley (St. Helens) said such a shed would be of vast benefit to the fruitgrowing industry.

Mr. W. Clifford moved as an amendment, "That the Government be asked to establish a grading dépôt at the ports of export at Hobart and Launceston."

Mr. H. Robinson, in seconding, said the success would depend either on Parliamentary action or co-operation among fruitgrowers. It might mean a step in the direction of an exporting department.

Mr. R. Creighton (Kettering) said he had been instructed by his Board to oppose the proposal, as it was the thin edge of the wedge to do away with orchardists shipping "on their own." He did not believe in the complication of brands. He believed in the best brands commanding the best prices.

Mr. Margetts (Upper Flowerdale) said his district did not grow apples, except kangaroo apples, but he could speak as to the grading of potatoes. He agreed with the main features of Mr. Shoobridge's contentions that grading was most important.

Mr. W. H. Connor (Queenborough) was a thorough believer in the grading of fruit. To get a price now this had to be adopted. He had seen cases of fruit which should not be sent away. He urged on the growers here to use as little branding as possible.

Mr. L. M. Shoobridge said the paper reiterated the expressions of many growers in the south. If they used few brands and graded properly they commanded good prices. But caution should be exercised in passing a resolution such as the one proposed, as it might gain the fate of others and become pigeon-holed. Careful packing of fruit was necessary. The reduction of the number of brands was necessary, but it could be brought about by co-operation. The growers should decide on the brands and grade, and each district could have its distinctive marks. Under this the buyer could get returns for his own fruit. There would be no difficulties if the matter was left to the State, but it could be decided by the growers themselves.

Mr. Steel Traill (Exeter) said it would be a mistake to apply to the Government to do the grading.

Mr. C. I. Knight (Frankford) considered the question of a shed was outside the subject "extension of fruitgrowing."

The Chairman said that Mr. Knight was out of order, as the discussion was on Mr. Shoobridge's paper.

Mr. Robinson, as seconder of the amendment, said that every effort should be made in the direction of co-operation.

The motion was lost, as was also the amendment.

Mr. E. Freeman (Franklin) moved as a further motion, "That packing-sheds should be erected in the several fruitgrowing districts by the fruitgrowers without Government support." He said he had listened carefully to the debates in the conference, and there had been an absence of self-reliance. It was go to the Government for everything. The Government provided the experts, and the orchardists and agriculturists should rely more on themselves.

Mr. W. J. Blackman (Franklin) seconded the motion, which was supported by Mr. Clifford.

The Chairman said he was the oldest fruit expert in Australia, and always a supporter of co-operation.

The motion was carried.

#### NEW MARKETS.

The Chairman said there was one question not on the notice-paper, but which was of great importance, that of fighting bitter pit.

Mr. C. I. Knight moved, "That the Director of Agriculture take steps to enquire from Europe, America, and South Africa to ascertain the quantity of apples they would like, and if there are any difficulties in shipping from Tasmania." If the motion was carried and the enquiries made it would be of great assistance to those engaged in fruit-growing.

The Chairman said it was a tall order, and business for business men. They had to find their own markets. The experts would advise them how to grow fruit, but not provide markets for them.

Mr. H. H. McFie said he wished to second the motion.

The Chairman: I cannot take it. I cannot recommend it to my Minister.

Mr. McFie contended that they might as well recall their Agent-General and save the £1000 a year.

Mr. P. Tucker (Scottsdale) supported the Chairman. This was no matter for the Agent-General, but for the fruitgrowers themselves.

A vote was taken, which resulted in the opinion that it was not to be a direction for the Director to obtain the information.

The Chairman said he would do all that was possible to get the information, but did not want to take it as a direction from the conference.

#### TAXING YOUNG ORCHARDS.

Mr. Steele Traill moved, "That it be a recommendation from this conference to Ministers to amend "The Codlin Moth Tax Act," so as not to tax young orchards until after the third year of planting." He

spoke of the hardships imposed on young orchardists, who were put to great expense in spraying, &c., before the trees came into bearing.

Mr. F. J. Hyndes (Franklin) seconded the motion.

Mr. W. Gowans (Glengarry) would support the motion if it was amended in the direction of certain exemptions by the Fruit Board.

Mr. A. Boatwright (Latrobe), Mr. P. Tucker (Scottsdale), and Mr. R. Creighton (Kettering) supported the motion.

Mr. Gowans moved an amendment to the effect that municipalities be empowered to tax young orchards if necessary.

Mr. C. I. Knight seconded.

The question whether the exemption should be for one-year-old trees or three-year-old orchards was debated.

Mr. McFie contended that if unless there was a straight-out question there would be endless trouble

The Chairman said that was compulsory, and that would meet the case.

The motion was carried, two voting against.

Mr. S. Shoobridge moved, "That in the opinion of this conference the resolution passed by the Ministers of Agriculture in Melbourne to employ Mr. McAlpine in connection with the investigation of bitter pit be strongly endorsed, and the Minister be requested to forward the resolution to the Federal Government."

Mr. L. M. Shoobridge, in seconding, said they should eliminate the name of Mr. McAlpine, as they had no right to dictate who should be employed.

Mr. L. M. Shoobridge said that Dr. Norris, Mr. Quinn, and himself had been appointed as a committee to investigate the report of Dr. Jean White, and that they thought it advisable to recommend holding over the investigation of bitter pit by Mr. D. McAlpine. He explained the reason why he supported the deferring of Mr. McAlpine's investigation, as arranged by the Federal authorities, was because when in Melbourne he was inclined to the view that the work carried out by Dr. White would throw light on the subject, and thus save the expense of the employment of a pathologist in this direction. Since then, Dr. Norris has visited certain orchards that have not been sprayed, and is satisfied that spraying is not the cause of bitter pit.

The Director said that the conference in Melbourne decided to appoint Mr. D. McAlpine.

Mr. Robinson said that while encouraging scientific research, they should get the opinion of practical growers.

The motion was carried.

#### THE PIG INDUSTRY.

Mr. R. J. Terry read the following paper:—

"Gentlemen: I feel that I have a very important subject to deal with. After listening to the debates on various farm matters it seems that the real profit to the farmer must come from what are known as

the smaller industries, which consume—and properly managed, turn into profit—the by-products of the farm. I think that I will not be saying too much if it is claimed that pigkeeping will to a very large extent make or break the dairying industry. For if one takes away the pig, there is at the present time no other profitable outlet for that portion of the cow's product, skim-milk, the value of which does not seem to be thoroughly understood by the average farmer or pig-raiser, some over-estimating its value, others under-estimating, and still others feeding it to the pigs in a wrong and unprofitable system. I have carefully worked out the feeding value of separated milk, and based its value on three popular Tasmanian grains—peas, barley, and oats. Five hundred pounds of separated milk is equal in feeding-value to 100 lb. of an equal mixture of the grains I have mentioned. Whey has a feeding value of 1300 lb. to 100 lb. of mixed grain, therefore it would be seen that the by-products from the dairy are of great importance in the economy of feeding pigs, and pig-raising is of material assistance in putting the balance on the right side of the ledger to the dairyman. It is not my intention this afternoon to discuss the question of feeding. At the present moment, judging by the condition of the pig market, there are matters of more immediate importance. The market at the present time is glutted. Some of the bacon factories are congested, hence a slump and low prices. They (the factories) are blamed for this condition, but I think I will be able to show you that we must in a great measure look elsewhere for shoulders on which this blame should rest. I will endeavour to treat this matter from a practical and commercial standpoint, and to get down to bedrock we must first consider what the consumer requires. The tastes of the public as regards bacon have undergone great changes in comparatively recent years. People will no longer purchase large fat heavy sides, as formerly. What is required is a side of bacon weighing from 40 to 50 lb., or even a little heavier if the side is long and lean. When I say lean I do not mean in a starved condition, but with a good proportion of lean meat in comparison with the fat. Further, to meet present-day requirements the bacon or ham must be mild cured, and of a pleasing appearance to the eye. It might be said that there is no trouble for the farmer to produce a pig which will give a side of bacon weighing, say, 50 lb.; but here is the crux of the whole position. There is more than mere weight required. We want the prime joints or portions of that side to be as heavy as possible, without injury to the constitution of the pig; in other words, a small shoulder is required, a big ham, a good loin, and a well-fleshed, fairly thick belly. If the bacon industry is to go ahead as it should do farmers must pay attention to the storekeepers' and consumers' requirements. Some little time back in Hobart a pig-breeder was talking to me about the price the retailer obtained for the cured article and the price the farmer obtained for the raw material. He had seen loin rashers marked up at 11d. per lb. I went with him to



a store, picked out two sides of bacon which were only 1 lb. difference in weight; but there was a terrible difference in shape. I cut those sides into joints, and asked the storekeeper to put the usual prices upon them, and the good-type side of bacon worked out 9s. 3d. more cash to the storekeeper than the ugly side of bacon, which was practically the same weight. If the loin and ribs will sell at 10d. or 11d. per lb., and the ham at the same price, and the shoulders 6d. to 6½d., does it not stand to reason that we want to strive to produce a pig which will give us as much of the prime cuts as possible; instead of, as now, in many cases, when the shoulder and head is taken off the pig is practically lost.

“Then there is this question—and it is a question that farmers must face if they are to have a profitable market for their pigs—that is, the period that they feed baconers must be considerably extended. The Tasmanian bacon factories—I am speaking of them now as a body—are considerably handicapped through not being able to procure a steady supply of pigs. No sooner do their customers get used to their particular brand of bacon than there is a falling-off in the pig supply, and certainly the factories cannot supply their customers all the year round. This is indeed a serious matter, not only to the bacon curer, but to the farmer; because if the bacon factories cannot obtain good prices for the finished article they cannot give you good prices for the pigs. A large amount of their output must be looked upon and sold as job lines. A storekeeper has no sentiment. He is catering for his customers. He gets them used to a certain brand of bacon, and he makes a mistake—I am speaking from years of experience—if he changes that brand, unless it is more or less a permanent change. It is this fact that gives some of the Victorian brands the hold they have in the State; not the fact that they are better than what we can produce, but the fact that the storekeeper can with full confidence order a certain number of sides of a certain weight, and he knows what he is going to have sent to him. Why should the storekeeper change, and purchase job lines unless their price is so much below the article he is satisfied with that it pays him for his extra trouble and risk?

“Speaking of job lines reminds me of another phase of the industry—that the fewer brands or separate cures there are in the State the sooner the industry will be on sound lines. I do not mean for one moment that there should be only one or two factories in the State; that would not be assisting the farmer. If there were monopolies the farmer might obtain a very poor price for his pigs; but what I do say is this—that there should not be any more factories than necessary to serve the various districts of the State, and farmers would do well to seriously consider the question of their not curing bacon for sale—of course, curing for their own consumption is a different matter. Further, the bacon factories should meet and endeavour to fix standards or grades for their products. I want this result to be brought about. Number 1 or number 2 grade bacon, as the case may be, manufactured in one portion

of the State, and shall be as near as possible in appearance, flavour, &c., to the same grade manufactured in any other locality; so that when the storekeeper asks for bacon of a certain grade he knows exactly what will be sent to him. When this grading has come together with a regular supply for factories we shall then shut out bacon from the mainland, because it will not pay our storekeepers to import it. We shall turn the tables, and export.

"I want to appeal to the common sense of the farmer on this question. Let him read the market reports; he will often find that when bacon is quoted at a certain price there are remarks as follows:—'Farmers' lots 1d., and even in some cases 2d. per lb. less,' or 'hard to place.' Now, it has cost the farmer as much to produce the pig which made that home-cured side of bacon as the pig which he sold to the factory to be cured. The pig in each instance, we say, made 100 lb. of bacon, but the factory article returned 15s. per cwt. more than the farmer's cure did; that is an avoidable loss to the State. Further, it is depreciating the fame of Tasmanian bacon, and these cases tend to reduce the price of the whole.

"Gentlemen, I feel strongly on this subject. I am not going to quote you at length what other countries do, but one brief quotation—and I am quoting something which I knew at first-hand, not something which I have heard or read about. I know no finer illustration of the value of a standard article than Danish butter. Now, why is Danish butter on top of the market quotations? Simply because it is Danish butter, and if you buy one cask of that butter you know that the next day, week, or month that the next cask you purchase will be just the same, the only difference being it naturally changes when it is grass butter or stall fed. I know that we cannot reach the same perfection in bacon as this, but our endeavour should be to get as near to it as possible."

Mr. J. D. Telford (Table Cape) would like to know something about the frozen pork industry. If the farmers could get 3d. per lb. it would pay handsomely. He moved, "That it is desirable that the Government should endeavour to establish a trade with frozen pork and lamb with England."

Mr. Terry did not think it would pay farmers to grow pork at 3d. per lb.; it might at 3½d., but that was a question for pig-feeds to decide. They would obtain in London 5d. per lb. at least for porkers, say about 60 to 80 pounds' weight. [In reply to a question it was stated that the cost of freezing, shipping, &c., would be 1½d. per pound, leaving, say, 4d. to the farmer.]

Mr. O. Ridley (Sheffield) seconded the motion, and remarked that he had prepared one in a similar form.

The Chairman took it that the Department should make all enquiries, and then leave it to private industry to deal with the markets.

In the discussion which followed several delegates emphasised that the matter was closely allied with the dairying industry in mixed farming.

What was required in connection with pig-raising, as well as in other branches, was inspection, and conformity in size and class.

Mr. H. A. Nichols considered in this connection a market should be obtained for bacon at a price that would pay for the production. Unless this was assured the bacon industry would not go ahead as it should.

Mr. Terry said he did not entertain much hope for smoked bacon being sent to England and competing with the article placed there. The whole of the American bacon sent to London was sent in green, and washed, dried, and smoked in London. It then had the bloom on it the same as the English article. The one thing required here was to regulate the supply.

Mr. J. C. Newton (Launceston) said that the main point of argument seemed to be distributing the product. Unfortunately the greater part of the pigs came in when the bacon demand was low. Tasmania had been breeding a nondescript brand of pigs, and the bacon had commanded—not second, but third class, grade. He ventured to say that the Tasmanian bacon would realise a very low price in the English market. If farmers would devote themselves to feeding pigs from January to December, and be more systematic in their breeding, the effects would be more beneficial to themselves, the factory, and the consumer. The low price of bacon was the fact that the Victorian article was being shipped here, and some Tasmanians were unpatriotic enough to purchase the cheaper imported article. He considered the Expert should spend six months in going through the State and advising farmers.

The Chairman did not think it was necessary to take a motion. The matter could be threshed out by those engaged in the industry. It was his intention to ask Mr. Terry to get together those directly interested, and see what could be done.

The motion was carried.

#### FORESTRY.

Colonel Legge read a paper on "The Monterey Pine," which is given *in extenso* on pages 346 to 353 of this issue.

The Chairman said the thanks of the conference were due to Colonel Legge. The Midlands required such shelter belts of the *Pinus insignis* referred to, while besides sheltering stock it was a valuable product for the timber industry. The samples submitted by Colonel Legge would be handed over to Mr. Osborne, and would be on view at the Departmental offices.

Mr. L. M. Shoobridge said that Colonel Legge had referred to the necessity for shelter, and this was a matter of much importance to agriculturists. It would be wise if the people began to plant suitable trees.

Mr. H. Foster said that the *Pinus insignis* growing in the Midlands was free from any disease. The planting of belts would alter the whole character of the Midlands.

Mr. J. Osborne (Government Fruit Expert) said the *Pinus insignis* would be of great value to orchardists for providing timber for fruit

cases. There was plenty of land in the fruitgrowing districts doing nothing at present which could be adapted for this.

Mr. H. Shoobridge said that Mr. W. E. Shoobridge had prepared a paper on "Forestry," but as the hour was late he did not intend to read it; but it would be published.

#### CONCLUSION.

The Chairman said that this concluded the business of the conference. The delegates could only show their appreciation to the Mayor and the citizens of Launceston for the courtesy in granting the free use of the Albert Hall by according a hearty vote of thanks.

A similar compliment was passed to the press, the Departmental staff, and the Chairman.



VIEWED merely as a method of insurance against crop loss, the expense of procuring suitable methods of applying water at the right time cannot be regarded otherwise than as a business-like investment.

## NOTE ON THE MONTEREY PINE.

### A NEW TIMBER FOR TASMANIA.

THE following note on the Monterey pine (*P. radiata*, vel. *insignis*) and its value for commercial purposes was read by Colonel W. V. Legge at the recent agricultural conference held at Launceston:—

A great American authority on forestry has published the following weighty sentences:—"Next to the earth itself, the forest is the most useful servant of man. Not only does it sustain and regulate the streams, moderate the winds, and beautify the land, but it also supplies wood, the most widely-used of all materials. Its uses are numberless, and the demands which are made upon it are numberless also. It is essential to the well-being of mankind that these demands should be met, and they must be met steadily and fully, and at the right time, if the forest is to give its best service."

We might amplify these encomiums, and add that the forest, so far as it can be restricted to sheltering homesteads and livestock on farms and runs, is the best servant of the farmer and pastoralist. The farmer, however, has done very little in this country to shelter his stock, notwithstanding that taking them throughout the year the Tasmanian nights are only on the average two degrees warmer than the English. The pastoralist also has done next to nothing, though his sheep and cattle on bare situations require as much warmth as the farmer's do, on his wind-swept paddocks. New Zealand has lead the way in the matter of tree-planting and tree-shelter; the foundation of this useful work having mostly been laid by the energetic men who settled at Christchurch, and who turned a barren plain into a woodland English county. So much is thought of the value of afforesting the windy lands of Canterbury that the shire councils in New Zealand are obliged yearly to plant a certain number of acres. The effect of this wise policy is easily seen when viewing the large artificial woods on hill and plain while travelling from the south to Christchurch and further north.

The Midlands district, with its cold winds and open runs, and the great cleared areas on exposed spurs and hillsides reaching from Sassafras to Flowerdale, are with but one or two intervening tracts equally in want of shelter. Had the same wise policy been pursued in Tasmania our sheep and cattle would have had far more comfort during the cold winter nights than is now afforded them. Warmth at night is essential to "condition" in stock, and is productive of milk. The cow that passes the night in trying to shelter itself from bitter winds behind a post-and-rail fence (as one knows is its habit, from looking at the agistment cattle on municipal roads), will give less milk than the one which has been lying down in comfort in a warm pine-plantation. Equally necessary is tree-shelter required as breakwinds round our northern and southern orchards. Certainly the loss of a row of fruit trees to give

place to those in the breakwind would not be felt more than that of the countless apples that were blown off in the recent March and April gales.

Let us assume, therefore, in spite of the above regrettable facts, that we are now, one and all, imbued with the desire to follow the example of



*Monterey Pine, about 35 years old, typically branched to the butt. Soil, dark loam, with clay subsoil. Situation: Millbrook, Mt. Nicholas.*

other countries and commence planting generally for shelter. This is a work which only wants a beginning to give the landowner a liking for it, provided he can get rid of the erroneous idea that trees are a losing

agent to him, and take up so much ground that they rob him of more land than he can afford to give.

The late Chief Forester (Mr. Matthews) waxes very eloquent on this subject in his useful book "Tree-planting in New Zealand," but I have no space here to quote his remarks. I would say, however, that after continuous work of tree-planting, lasting over 26 years, I cordially agree with him that the better condition of our stock, both in winter and summer, when enjoying shelter, outweighs the loss of ground in plantations; and if one is about to sell his property, considerably enhances the value of it.

Fearing that my introductory remarks may have been somewhat lengthy, I will now proceed to the point of my paper, and speak of the value of our useful Californian pine, so much in evidence in this country, as a shelter-tree for plantations and breakwinds. The great merit of this conifer is its remarkable powers of growth, provided it is planted properly, tended the first three or four years of its life, and has been placed in a dry situation. This latter point is important, for no conifer, except one or two species, can stand waterlogging, nor can it even thrive under such conditions. Shelter quickly acquired is the one thing needful in Tasmania now. To attain the first results a bank should usually be chosen for the planting, or, if a flat is made use of, then the site should if possible be surrounded by a small drain. If this be done good shelter for both sheep and cattle can be obtained in seven years, either in a light, sandy loam, a gravelly loam, or a good soil. After 10 years the *role* which the plantation has to play, as well as that of shelter, is to form an *interrupter* and a *diverter* of wind currents, by reason of the great height to which the trees attain; and in 12 to 14 years they are sufficiently tall to render this useful service. It is important, however, to add that these pines must be planted close enough to form a solid block of foliage, as they do in their natural state when growing in pure forest, for when the trees are at wide intervals they fail in diverting the wind and give little overhead cover to stock at night.

The Monterey pine grows so rapidly that a plant that is healthy makes three distinct growths in a year; by which is meant the formation of the "stem-intervals" respectively between the whorls characteristic of coniferous trees. After being planted for about four years this quick growth begins to increase in height of stem and extension of the laterals to a remarkable degree, the growth of the former being, in some four-year old trees, more than 18 inches in each whorl. The three-year-old trees in my young plantations, about 800 feet above the sea, start the winter growth in May; and this year, after the heavy rains, they have already made over a foot of top. In September another span will be commenced. This excessive growth makes the Monterey pine far and away the best species for shelter, and in addition to this it has the advantage of being the handsomest pine in shape and foliage that has been introduced into Australia. Its noteworthy feature is its habit of

retaining its branches down to the butt until it has acquired immense size. To this object the young plant must be carefully treated, and to ensure the best results, as regards prevention of draught, the outer row of trees in a plantation might well be protected by a light inner-ring fence of wire to prevent the stock when placed in the plantation from breaking the lower branches, for if this should happen they never grow afterwards. It is remarkable that the first thing sheep and cattle do when gaining access to an unsheltered pine is at once to maul the lower branches, and cause the tree to become draughty. A necessary precaution when planting is at once to stake the young trees, and so prevent wind-leverage on the roots, for if quick shelter is wanted the young tree makes much better progress if thus treated. In forestry, or in timber-planting, this, of course, is out of the question; moreover, so soon as young trees planted for the latter purpose from 6 to 8 feet apart begin to grow strongly they draw one another up, mutual shade pruning off the lateral branches causing a typical pine forest to evolve more quickly than in Nature's woods, where the trees in many situations may be more or less widely or unevenly spaced.

The Monterey pine makes better growth in Australia than in Great Britain, and is also a far better timber-tree in the former region, as we shall presently see, than in its very limited coastal habitat in Southern California.

The last Victorian Forestry Report gives an interesting table of the height of the various conifers for different ages in Great Britain and Australia.

*Pinus radiata* (our pine) is set down as 62 feet, 90 feet, 79 feet, at respective ages of 45, 52, 52 years, in Great Britain; whereas in Victoria at Nasedon and Creswick the growths are 108 feet, 110 feet, 110 feet, at 26, 34, 34 years respectively. There are two examples of my own planting at Cullenswood of between 60 and 70 feet at 24 years of age, one of which was topped by 25 feet some years ago, while a third (29 years old) which had its top once broken is now about 80 feet in height. Thus, we see, it is proved to grow quicker in Australia than anywhere else. In the firstnamed series in England the trees are supposed to be individual specimens, but in the latter case at Cullenswood the 70-foot trees are examples growing in rows with other pines. In a recent note published in the Tasmanian papers I gave details as to distances apart for trees in rows and clumps, and it may be right to mention again that in windbreaks or shelter clumps the interval should not be more than 9 to 12 feet. In the first case—that of rows—a narrow interval causes a solid breakwind, and in the second type (clumps) furnishes an overhead canopy, or what is called forest cover. At Cullenswood trees in rows at 10 feet are over 6 feet in circumference and 40 feet in height, and this is all that is required for shelter.

In plantations, however, the space between the rows may be increased to 15 or 18 feet with trees of healthy growth without spoiling the overhead canopy for warmth and partial protection from night-rain.



It may be important to state that young trees up to 10 or 12 feet in height, and when assuming a bulky or umbrageous form, before beginning to shelter one another by competitive growth are occasionally blown over in winter. This usually happens in gales after heavy flood-rains causing a soaked ground. The roots to windward may be badly broken by the tilted-up ground; but, notwithstanding, the trees can be lifted and brought back to their normal conditions by applying a gum-fork to the trunk, and thus firmly propping it. A shallow trench can then be dug near by, and the contents heaped on the broken roots until they are weighed down. The result will be that the pine will soon recover from the fall. If necessary, the new earth thus placed on the broken portion can be weighted with timber, but some good sods well stamped down will usually suffice.

Let us pass now, after dealing with this pine from an agriculturist's and orchardist's point of view as a shelter-tree, to its value also as a timber product. Any tree whatsoever possessing the phenomenal growth of this species must very materially enhance its value if it is capable of producing a useful wood. Unfortunately, in this connection our pine has had a bad name given to it, evidently from a misapprehension; and, as usual, the bad reputation has adhered to it.

Professor Sargent, in his voluminous American botanical work "*Silva*," states, in speaking of the Monterey pine as it grows in the small area round Monterey Bay, Lower California, that the wood is soft and brittle. There may be two ways of accounting for this statement, which, as regards the tree as it grows in Australasia, is not correct. First, we may surmise that in the author's mind the wood seemed of little value in comparison with that of the many splendid timber-producing conifers in the Eastern States, or the equally fine pines, firs, and spruces, which are commercially so well known from the Western States, the Rocky Mountains, and the Pacific Coast adjacent to the latter. This fact, coupled with its very limited habitat—a narrow strip of only about 150 miles of coast-line—would probably lead to its being more or less ignored in the Eastern States of America, in which the great work "*Silva*" was compiled and published.

As regards the second reason, it is now fairly well known that this pine has developed into a much finer tree under the influence of the Australian climate, and acquired such vigour in our regions, that it flourishes well from Southern Tasmania to Brisbane—a coast-line covering 19 degrees of latitude. Furthermore, it grows with strength and rapidity in frosty altitudes of more than 1500 feet above sea-level. This has led to the statement made in the Victorian and New Zealand Forest Departments that the timber of the Monterey pine is of a different and superior quality to that obtaining in America. It may be remarked in passing that in New Zealand, where its timber has proved very useful, it is quite at home in still colder latitudes, namely 46 degrees south in the districts of the Bluff and Invercargill.

It was in Victoria, so far as I am aware, that its value as an Australian timber-tree was first demonstrated. This was owing to the purchase some years ago of a fine plantation of 30-years old trees at Ballarat by a timber merchant there, the timber from which was sawn up for the construction of packing cases for harvesting machinery. Near to that locality, also, in the Creswick Forestry Reserves, where great numbers of this pine have been planted in conjunction with Corsican, Austrian, and Pallas pines, the thinnings of 15-year-old trees have been recently cut up and sold for fruit cases, a use to which the wood is eminently adapted.

Two hundred tons of pine of this description were sold in 1909-10 from the Creswick Forest, out of which quantity the Monterey pine realised the value of £100 per acre.

The most assuring evidence, however, that this pine is destined to be in these southern latitudes of no mean use as a commercial product comes from New Zealand. There, Mr. T. W. Adams, of the Survey Department, in the Middle Island, gave the following evidence before the McKenzie Domain Board, Otago:—"I have no hesitation in saying that the wood of the *Pinus insignis* from trees between 30 and 40 years old will saw into timber admirably adapted for the construction of all kinds of outbuildings, such as stables, shearing-sheds, &c., and I would not hesitate to use the timber from trees of 49 years' growth for the building of a home, provided I could have it well cut. The rough manner in which most of the pine has been cut that has been used so far has caused some prejudice against it; but when well cut it looks well, and as it dries it hardens into really good boards, fit for any purpose, as can be seen in many places in Canterbury."

For the last two years I have been endeavouring to controvert the opinion emanating from Professor Sargent in the abovementioned American work, and published the above evidence in the "Mercury" last year, besides quoting it in lectures on "Shelter-planting"; but I am uncertain as to whether I have been successful in removing the stigma on the timber published in "Silva." It seemed to me therefore only proper to experiment on Tasmanian-grown timber, and prior to cutting down one or two large trees 23 years old, I had a short log from a 14-year-old tree,\* about 35 feet in height by 14 inches in diameter, sawn up and submitted to an expert wheelwright and carpenter. I give here his opinion on the timber-value of this young tree, with its immature and not fully-developed wood, the chief characteristic of which, as will be seen, is its remarkable toughness of grain.

The following is the report of the carpenter in question, whom, I may state, is a man of considerable experience:—

"I have used a plank of the sawn pine log you sent me, and I have tried it in several ways. It is easy to work, and it should meet with a big demand in the dairying industry for butter-boxes, 'butter-workers,' and churns, as it has no smell. It is easily kept clean, and it will stand

\* Grown in the open, and therefore with a branched trunk, which would not be the case in a forest plantation.

any amount of rough handling, and is the toughest soft wood that has ever been brought under my notice. I may state that I have been working amongst Tasmanian timbers for over 30 years. I have made you a rough letter-tray from a piece of it. It is not dovetailed or finely finished; the corners are simply nailed together with  $1\frac{1}{2}$ -inch wire nails. It shows the toughness of the wood, as the nails are driven about a  $\frac{1}{4}$ -inch from the edge, and the timber shows no sign of split or fracture."

"Yours, faithfully,

"June 6, 1911."

"C. CANNELL (SEN.), Carpenter, St. Marys.

When we consider the small size and youth of the example from which these planks were cut the testimony now afforded is most valuable. For, together with the evidence adduced from Victoria and New Zealand, it proves that this pine, with its unrivalled growth and consequent quick commercial return, will become an important asset in the timber products of Tasmania.

In regard to the specimens exhibited, it was thought best to have the paper tray put together simply with nails to show, as the carpenter says, the toughness of the wood. It will be seen how close the nails are driven to the end of the board, showing the fitness of the timber for making fruit-cases and other boxes. The small chock is also shown for toughness of grain. It required two stout blows of a shingle-hammer after the blade was inserted to split this piece from the base block of the sawn planks. The toughness of the grain, the carpenter also pointed out, would make the wood useful for certain purposes in carriage-building, for which it is difficult to get suitable timber. The turned egg-cup, if examined, testifies to the remarkable closeness and toughness of the wood. But perhaps the example with a turned mitre at the end and a 3-inch nail driven across the butt without the sign of a split, and which was done in my presence, is a still better proof of its value to the carpenter and tradesman. To show the strength of the grain, Mr. Cannell placed a 7-inch by  $\frac{3}{4}$ -inch plank on the raised cill of a doorway and jumped on it twice without its showing any fracture; and he is a man of about 14 stone.

The close, leathery grain and absence of smell, leads to the belief that it will prove valuable for the construction of butter-boxes and churns, as Mr. Cannell suggests. The combined uses, therefore, of the Monterey pine, as a shelter for stock and orchards if rightly planted and cared for, together with its value as a timber-tree for orchardists, dairymen, and others, must be my excuse for the space devoted to this latter point in its economy. To remove the bad reputation not fairly bestowed on the pine as a timber-tree, and to call the attention of this representative meeting of farmers and graziers to the important industry which can now be created by planting it in quantities on waste land for timber purposes, are my reasons also for speaking at length on the forestry aspect of the question.

As it has been proved to last well in the ground if planted with the bark on the sunken portion, it can always be grown, where timber is

scarce, by graziers and farmers for posts and outbuildings. It is right to state that in a horse-shed adjacent to the Baptist Chapel, West Kentish, there are posts to be seen which are sound at the present time, and were put in 12 years ago to replace gum timber which had decayed. The drippings from the shed-roof, and consequent soakage of the ground, have, I have been informed, produced no ill effect on these pine posts. Being fairly light to handle, it, therefore, should prove valuable for straining-posts in wire fences, where eucalyptus cannot be obtained.

Finally, if it can be proved that this pine is adapted for the manufacture of butter-boxes much benefit will accrue to the State in this connection. Two or three years ago strenuous efforts were made to get the question taken up of using the "Moreton Bay," or "Hoop" pine (one of the well-known *Araucarias* of Australia) for butter-boxes. Experiments were tried with it, but so far as I am aware no satisfactory conclusion has as yet been arrived at. It was pointed out, as quoted in the "New South Wales Forest Flora," that it would be most desirable if local wood could be used for the above purpose instead of the New Zealand "*Kahitikea*," or White pine.

Let us now hope that we in Tasmania will soon be making our butter-boxes of Monterey pine.

#### ADDENDUM.

It is satisfactory to notice that the writer of the article on *Pinus radiata* in the "Australasian," which was published on the same day that my paper was read at the farmers' conference, speaks highly of the value of its timber. The evidence adduced from the report of Mr. Gill, the Conservator of Forests, South Australia, as to its employment for fruit-cases— for which it is so highly adapted that the cases can be nailed and *renailed*, owing to the toughness of the wood—should, with the experience at Creswick for a similar use, induce fruitgrowers to plant it largely. At Creswick the soil on the hills is of a poor nature, and I found it flourishing well in decidedly poor soil, and making more rapid growth than in Tasmania. There is certainly no pine that will give such a quick return in Tasmania as the Monterey pine.

On looking up the notice of this tree in Müeller's "Extra-tropical Plants," one finds evidence of the esteemed baron's German thoroughness in the short paragraph devoted to it, into which many interesting details are compressed. His mention of the attacks of the pine beetle on it in Great Britain gives one cause for satisfaction that in this country it is free from such a scourge. His mention of the toughness of the wood, and its being sought after for "boat-building" and the construction of "various utensils," shows that so far back as the seventies of last century the economic value of the pine was known, despite the bad name given to it in America. Its hardiness, enabling it to "endure unhurt" a temperature of 118 in the shade, together with its standing many degrees of frost (as evidenced by its life in New Zealand), prove it to be a species of an exceptionally robust nature. So far as can be ascertained without exhaustive enquiries, the great frost of 1903 in the South Island was the only one under which it suffered, many trees being killed in central Otago and in the Waimea Valley at a temperature close on zero.

## FIFTY DAIRY RULES

### THE OWNER AND HIS HELPERS.

1. Read current dairy literature and keep posted on new ideas.
2. Observe and enforce the utmost cleanliness about the cattle, their attendants, the stable, the dairy, and all utensils.
3. A person suffering from any disease, or who has been exposed to a contagious disease, must remain away from the cows and the milk.

### THE STABLE.

4. Keep dairy cattle in a room or building by themselves. It is preferable to have no cellar below and no storage loft above.
5. Stables should be well ventilated, lighted, and drained; should have tight floors and walls, and be plainly constructed.
6. Never use musty or dirty litter.
7. Allow no strongly smelling material in the stable for any length of time. Store the manure under cover outside the cow stable, and remove it to a distance as often as practicable.
8. Whitewash the stables once or twice a year. Use land plaster in the manure gutters daily.
9. Use no dry, dusty feed just previous to milking; if fodder is dusty, sprinkle it before it is fed.
10. Clean and thoroughly air the stable before milking. In hot weather sprinkle the floor.
11. Keep the stable and dairy-room in good condition, and then insist that the dairy, factory, or place where the milk goes be kept equally well.

### THE COWS.

12. Have the herd examined at least twice a year by a skilled veterinarian.
13. Promptly remove from the herd any animal suspected of being in bad health, and reject her milk. Never add an animal to the herd until certain it is free from disease, especially tuberculosis.
14. Do not move cows faster than a comfortable walk while on the way to place of milking or feeding.
15. Never allow the cows to be excited by hard driving, abuse, loud talking, or unnecessary disturbance; do not expose them to cold or storm.
16. Do not change the feed suddenly.
17. Feed liberally, and use only fresh, palatable feed-stuffs: in no case should decomposed or mouldy material be used.
18. Provide water in abundance, easy of access, and always pure; fresh, but not too cold.
19. Salt should always be accessible.

20. Do not allow any strong-flavoured food, like garlic, cabbage, and turnips, to be eaten, except immediately after milking.

21. Clean the entire body of the cow daily. If the hair in the region of the udder is not easily kept clean, it should be clipped.

22. Do not use the milk within 20 days before calving, nor within three to five days afterward.

#### MILKING.

23. The milker should be clean in all respects; he should not use tobacco; he should wash and dry his hands just before milking.

24. The milker should wear a clean outer garment; used only when milking, and kept in a clean place at other times.

25. Brush the udder and surrounding parts just before milking, and wipe them with a clean, damp cloth or sponge.

26. Milk quietly, quickly, cleanly, and thoroughly. Cows do not like unnecessary noise or delay. Commence milking at exactly the same hour every morning and evening, and milk the cows in the same order.

27. Throw away (but not on floor, better in the gutter) the first few streams from each teat; this milk is very watery and of little value, and it may injure the rest.

28. If in any milking a part of the milk is bloody or stringy or unnatural in appearance, the whole mess should be rejected.

29. Milk with dry hands; never allow the hands to come in contact with the milk.

30. Do not allow dogs, cats, or loafers to be around at milking-time.

31. If any accident occurs by which a pail full or partly full of milk becomes dirty, do not try to remedy this by straining, but reject all this milk and rinse the pail.

32. Weigh and record the milk given by each cow, and take a sample morning and night, at least once a week, for testing by the fat-test.

#### CARE OF MILK.

33. Remove the milk of every cow at once from the stable to a clean, dry room, where the air is pure and sweet. Do not allow cans to remain in stables while they are being filled.

34. Strain the milk through a metal gauze and a flannel cloth or layer of cotton as soon as it is drawn.

35. Aerate and cool the milk as soon as strained. If an apparatus for airing and cooling at the same time is not at hand, the milk should be aired first. This must be done in pure air, and it should then be cooled to 45° F. if the milk is for shipment, or to 60° F. if for home use or delivery to a factory.

36. Never close a can containing warm milk which has not been aerated.

37. If cover is left off the can, a piece of cloth or mosquito-netting should be used to keep out insects.

38. If milk is stored, it should be held in tanks of fresh, cold water (renewed daily), in a clean, dry, cold room. Unless it is desired to remove cream, it should be stirred with a tin stirrer often enough to prevent forming a thick cream layer.

39. Keep the night milk under shelter so that rain cannot get into the cans. In warm weather hold it in a tank of fresh cold water.

40. Never mix fresh warm milk with that which has been cooled.

41. Do not allow the milk to freeze.

42. Under no circumstances should anything be added to milk to prevent its souring. Cleanliness and cold are the only preventatives needed.

43. All milk should be in good condition when delivered. This may make it necessary to deliver twice a day during the hottest weather.

44. When cans are hauled far they should be full, and carried in a spring wagon.

45. In hot weather cover the cans, when moved in a wagon, with a clean wet blanket or canvas.

#### THE UTENSILS.

46. Milk utensils for farm use should be made of metal, and have all joints smoothly soldered. Never allow utensils to become rusty or rough inside.

47. Do not haul waste products back to the farm in the cans used for delivering milk. When this is unavoidable, insist that the skimmed milk or whey can be kept clean.

48. Cans used for the return of skimmed milk or whey should be emptied and cleaned as soon as they arrive at the farm.

49. Clean all dairy utensils by first thoroughly rinsing them in warm water; then clean inside and out with a brush and hot water in which a cleaning material is dissolved; then rinse, and lastly sterilise by boiling water or steam. Use pure water only.

50. After cleansing, keep utensils inverted, in pure air, and sun if possible, until wanted for use. - [From Report of Bureau of Animal History (U.S.), 1898.]



WASHING-SODA can be safely used in the dairy for cleansing utensils, as it is neither poisonous nor corrosive.

## IRISH BLIGHT.

By ARTHUR M. LEA, F.E.S., &c., Government Entomologist.

**W**HEN this disease appeared in Tasmania a few years back, it was not recognised as such, largely on account of its not doing anything like the amount of destruction it was expected it would do, and also by its not conforming to its published characters. It was, for instance, commonly stated that the disease could not survive a temperature of 77° F.; but we now know that it can survive even



*Leaves affected by Irish Blight.*

A. Conlon, photo.

greater temperatures. The most striking variation, however, was in the smell. Practically all the ex-Australian publications dealing with the subject state that the disease is accompanied by an extremely offensive smell. In a few cases in Tasmania a very offensive smell has been present, but in the vast majority of cases it certainly has not been noticed. The leaves when being rapidly destroyed by the blight, in rainy weather often have a noticeable smell, but it is certainly not highly offensive, nor even disagreeable. The explanation probably is that the smell is really due to a bacterium that frequently, but not necessarily, accompanies the blight.



In a few isolated cases in past seasons whole crops were destroyed in Tasmania. That these cases were not more numerous was certainly due to favourable weather. But the season just over has demonstrated beyond question that the disease is capable of being just as virulent in Tasmania as elsewhere; for practically wherever potatoes were grown blight was present. A few crops escaped, but the majority suffered more or less severely, not a few growers losing the whole of their crops.

Irish blight is caused primarily by a fungus, belonging to the group of mildews, and known as *Phytophthora infestans*. It attacks all parts of the plant, and is especially destructive in warm, moist weather; and in such weather is capable of destroying an entire crop in less than a week. On the leaves the first sign noticed is usually a blackish, soft-



*Tops destroyed by Irish Blight.*

A. Conlon, photo.

looking patch, at the base of a leaflet, the stem of which is often killed. If damp weather continues these patches rapidly spread, until the whole plant is killed, and on looking at the under surface of the leaves patches of a very fine whitish mildew are often visible. If dry, sunshiny weather succeeds a few wet days, the spots may dry up without showing any mildew, and very little damage may result.

On looking at the mildew under a high power of the microscope, it will be seen to consist of thin stems (conidiophores), supporting tiny more or less rounded or oval objects (the spores or conidia), and it is mostly by means of these that the disease is distributed. Each one of these is capable of setting up the disease if it should lodge on a potato leaf in favourable weather. But another and highly remarkable method of infection occurs, as the spores often split up into objects known as

zoospores, and these swim about in water, much like tiny little water fleas; in fact, when seen under the microscope, actively swimming about, it is difficult to believe that they do not belong to the animal instead of the vegetable kingdom. It is largely by means of the zoospores that the tubers are attacked. The spores when ripe fall to the ground, divide up into zoospores, and these are carried by trickles of water through the ground, until they come in contact with the tubers; hence it is possible for the tubers to become affected, even when the tops are not attacked. This also explains why the disease usually becomes worse the longer the tubers remain in the ground, and especially after rain.

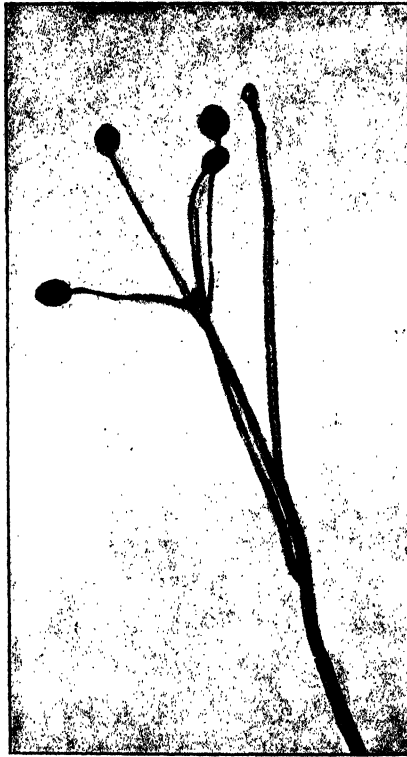


*Section of Potato Leaf showing Spawn of Fungus inside and the fructification growing through the breathing pores (st.) on the under-surface. Magnified 150 times.*

The principal way the disease is distributed over wide areas is undoubtedly by means of seed potatoes; but from farm to farm it is often carried by wind, or by men and animals, and birds.

In the potato itself the disease usually appears as a brown mottling near the skin. If the potatoes are kept under moist conditions the affected patches rapidly spread, and the potatoes rot; hence it often happens in damp ground that the whole, or almost the whole, of a crop is destroyed. On being dug out, if the tubers are kept under dry conditions the disease spreads more slowly, and the brown mottling near the skin may remain almost stationary. Frequently the outside of the

potato will appear covered with patches of white mould, and on this being examined under the microscope spores of the disease will often be found on it, although it is frequently barren. Usually on the outside there are small depressed areas where the skin has fallen in, but often there is no external indication whatever of the disease, although the mottling becomes visible as soon as the tubers are cut. The mottled patches are often hard, but usually there are soft patches of rot about them. A disease commonly mistaken for Irish blight is one known as brown spot or brown fleck. This disease is of unknown cause, but



*Fructification with various Branches from the Main Stem showing the Spore-cases or Sporangia still attached. Magnified 300 times.*

appears in the form of brown spots in the flesh of the potato, usually distant from the skin; and on cooking the spots remain hard and brown. Some varieties are very badly affected by it.

In Tasmania, so far, the disease has only been found on the potato and tomato, but it is also known to attack the petunia and kangaroo apple, two other solanaceous plants.

No variety of potato is known to be blight proof, but the Up-to-date, Bismarck, and Commonwealth take it less severely than other sorts. Our best potato—the Redskin—takes it, perhaps, worse than any other.

## REMEDIES AND PREVENTATIVES.

It is now known that the disease may be effectively checked by means of bluestone used as a spray, with either lime or soda, and applied sufficiently often. Just how often it should be used in Tasmania will vary from season to season, according to the weather.

The effectiveness of the spray depends not so much on its strength as the thoroughness with which it is applied. A spray used at twice the ordinary strength will be much less useful than the ordinary strength, if applied in a coarse form, so that the drops do not cover much surface, or



*Fruetification showing Mode of Branching; the Swellings indicate where the Sporangia were attached. Magnified 300 times.*

drip to the ground. The finer the spray is applied, and the more surface it covers, the better.

Probably as good a mixture to use as any other is:—

1 lb. of bluestone.\*

1 lb. of quicklime.

10 gallons of water.

The lime should be freshly burnt, or if no such lime is locally prepared it may be obtained in tins.

\* It is often recommended to use the bluestone at a greater strength than 1 lb. to 10 gallons, but the effectiveness of the spray depends much less on its strength than on the thoroughness with which it is applied.

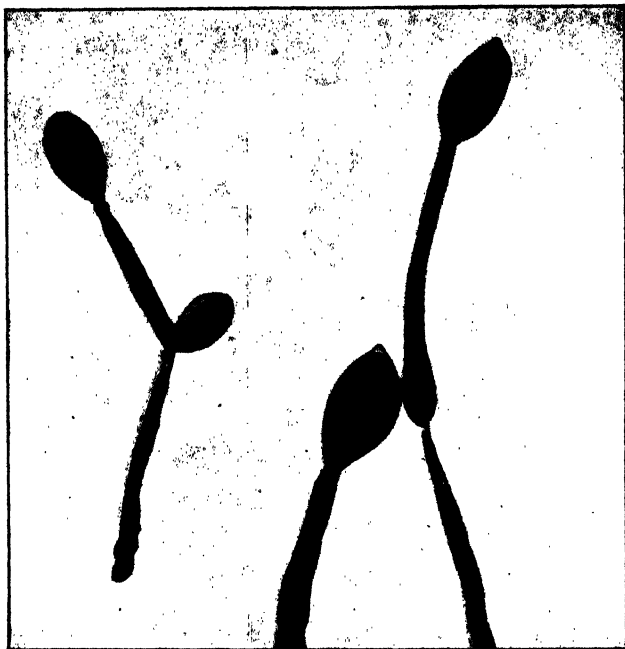
In place of the lime soda may be used as follows:—

1 lb. of bluestone.

$1\frac{1}{4}$  to  $2\frac{1}{4}$  lb. of soda, according to quality.

10 gallons of water.

As limes and sodas vary considerably in strength, it is often necessary to test the mixture, and this can readily be done by means of phenolphthalein test papers\*; or, if these are not available, a bright new nail or clean blade of a penknife can be used. If either of these is dipped into the prepared mixture and left in for a minute, it should come out clean (undimmed), if the mixture is properly prepared; if, on the other



*Spore-cases both at the End and Side of Branches. Magnified 300 times.*

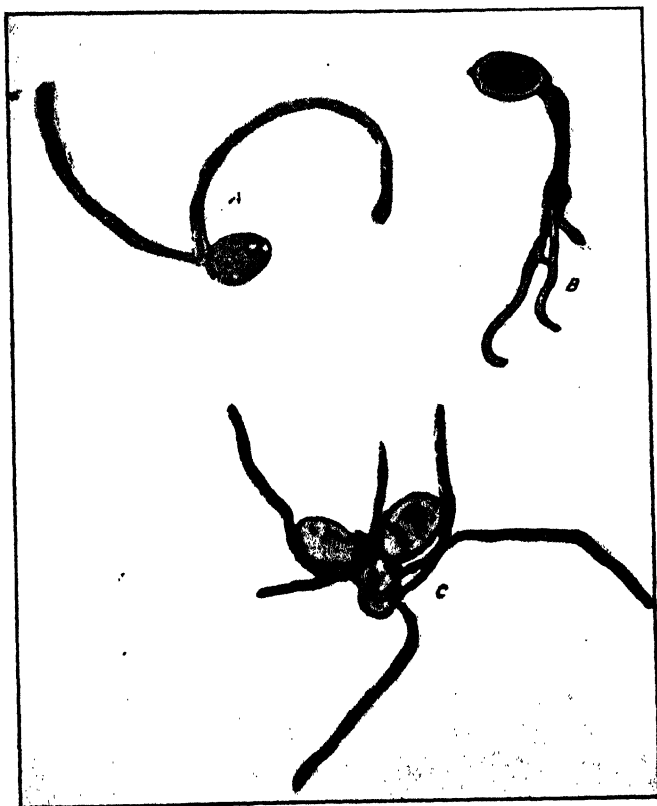
hand, there is not enough lime or soda, the nail or blade will come out with a slight coppery colour, in which event more lime or soda should be added.

To a certain extent the effectiveness of the spray depends on how it is prepared. It has been proved that a spray prepared in concentrated form, and then diluted, is less effective than if prepared for use at the actual strength required. In making large quantities, therefore, a kit of casks, &c., is advisable. If the spray-pump holds 60 gallons, a kit for use should be two casks or tubs, each to hold 30 gallons, and a cask to hold 60. In one of the 30-gallon tubs 6 lb. of dissolved bluestone should be placed, and the tub then filled with water. In the other tub

\* These can be obtained gratis from the Department of Agriculture.

the necessary amount of dissolved soda or lime should be placed, and then filled with water. Then a bucketful of each at a time should be poured into the 60-gallon cask till this is filled. It is then ready for use, and can be poured into the pump. If not used for a few days it should be well stirred; but is better used at once.

Bluestone can be dissolved in a few minutes with boiling water. It can be dissolved in cold water, but a much longer time is required. It should be dissolved in wooden buckets or crockery bowls, as it rapidly eats into iron.



*Conidia Sprouting Direct, each producing one or two Germ-tubes.  
Magnified 300 times.*

In a recent number of the "Victorian Agricultural Gazette" Mr. McAlpine says: "Some idea of the recent progress made in this matter of spraying may be gained from the fact that during the last three years nearly 4000 spraying machines have been sold through the efforts of the Department in the congested districts of the west of Ireland alone."

In a crop known to be infested it is advisable to dig out the tubers as early as possible, as the longer they are left in the ground the more likely they are to be destroyed. After being dug they should be brought

to a barn and carefully picked over, all bad or doubtful ones being put aside for pigs or cattle. If intended to be kept for some time they should be stored in as dry a place as possible, and where air can circulate amongst them. Hence it is very undesirable to "pit" them. Several cases have come under the writer's notice where the whole, or almost the whole, of the potatoes in pits were destroyed, although the growers were unaware at the time they pitted them that they had the blight, and probably but few affected ones were put in the pit originally. But the disease, under moist conditions, is capable of spreading so rapidly that if only one affected potato is put in a pit, that one would be capable of causing the destruction of the whole. Many a crop has been saved by cutting off the whole of the tops as soon as the blight appeared; removing the tops, of course, stops the growth of the tubers, but these are thus saved from attack.

As all potatoes that have been in contact with diseased ones are liable to be contaminated, it is advisable to treat all seed before planting it. By dipping them in corrosive sublimate or formalin, all the spores or germs of various diseases, such as Irish blight and the various



*Free Swimming Zoospores, each with two delicate projecting threads, by means of which they are able to swim about in moisture. Magnified 300 times.*

kinds of scabs, will be destroyed; although, of course, the dipping will have no effect on diseases within the potatoes themselves.

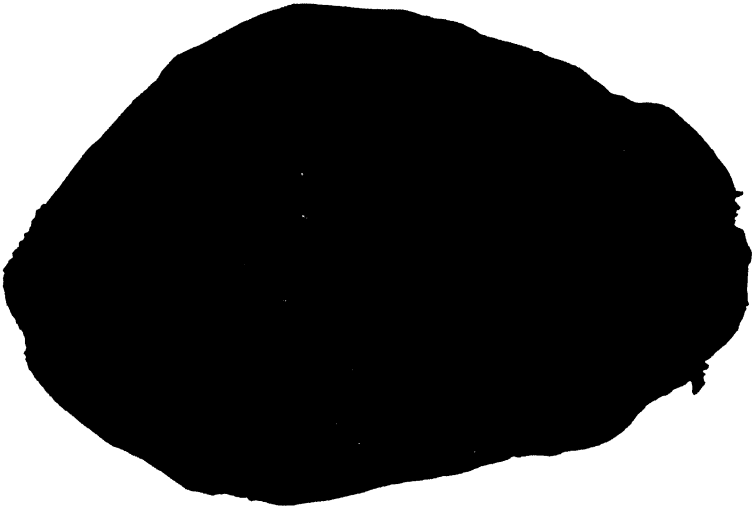
Of the dips used, Professor B. T. Galloway, of the Washington Department of Agriculture, says:—"A solution of corrosive sublimate has given the best results. This should be prepared by dissolving  $2\frac{1}{2}$  oz. of corrosive sublimate in about 2 gallons of hot water, and, after an interval of 10 or 12 hours, diluting with 13 gallons of water. The potatoes to be planted are simply immersed in the solution for an hour and a half, then spread out to dry, cut, and planted in the usual manner. A large barrel offers a convenient receptacle for the solution. The potatoes may be placed in a coarse sack and suspended in the liquid, care being taken to wash the tubers before dipping, providing they are very dirty. The corrosive sublimate is very poisonous; therefore it must be used with great care, and kept out of the reach of children and animals. *All treated tubers should be planted.*"

Of the formalin he says:—

"To prepare the formalin solution mix 8 fluid ounces of commercial formalin with 15 gallons of water. Formalin is fully as effective as the

corrosive sublimate solution, and as it is far less dangerous it will probably come into general use. In treating seed with this preparation the whole potato should be soaked for two hours in the solution. After soaking, the potatoes may be dried, cut, and planted in the usual way, care being taken not to allow them to become contaminated by coming in contact with bags, bones, or bins where scabby or blighty potatoes have been kept. In practice it is found that 15 gallons of either of the foregoing solutions will be sufficient to treat 20 to 25 bushels of potatoes, taking ordinary precautions, of course, not to waste too much of the fluid as each lot of the tubers is dipped."\*

It has been proved that the disease can be killed within the potato itself by means of dry heat. Of this plan McAlpine says: "The method has already been tested on the Continent of Europe by Jensen,



*Potato with Depressed Spots Characteristic of Irish Blight.*

Govt. Printer, photo

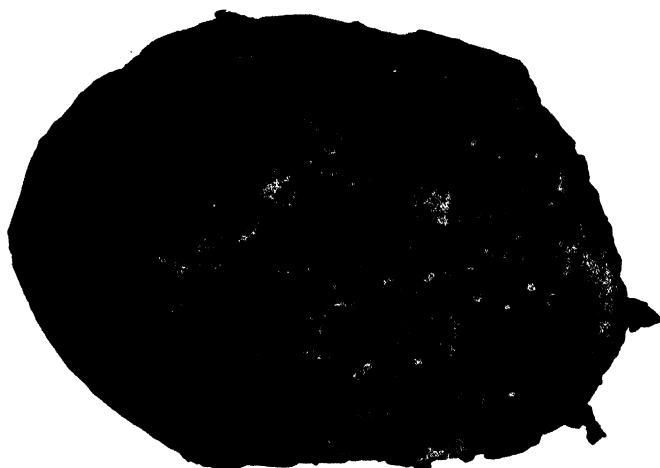
who used freshly-dug diseased tubers, and found that the fungus was destroyed in the treated potatoes, while those untreated developed a rich crop of the fungus. I have also carried out similar experiments and obtained similar results. Diseased potatoes were placed in an incubator for four hours, kept at a constant temperature of 120° F., and subsequently kept moist in a bell-jar to see if the fungus developed. While there was no trace of the disease in the treated lot, those untreated developed the fungus freely. Not only so, but the treated tubers sprouted more freely and better than the untreated. At a dry heat of 120° to 122° F. the mycelium of the fungus is destroyed within the tissues of the potato, and there is no development of the disease, unless infec-

\* The gallon of Professor Galloway is the American gallon of 8 lb., not the Imperial gallon of 10 lb., as 4 Imperial gallons are equal to 5 American gallons. It is therefore necessary to increase the amounts of corrosive sublimate and formalin as follows: Use 1 lb. of corrosive sublimate to 85 gallons of water, and 1 pint of formalin to 30 gallons of water (1 pint to 24 gallons of water is recommended by Tryon, of Queensland, and by this Department). A bushel of potatoes weighs 60 lb.



tion occurs from outside sources." The Victorian Department of Agriculture also claims that this treatment will destroy the gall-worms or eel-worms within the potatoes.

A practice that is very dangerous, but is unfortunately only too common in Tasmania, is to place a few potato tops on top of the bags in the field. If there was no Irish blight in the field this, of course, would do no harm, but as there usually is blight in the field, and almost certainly in the tops, the result is that the leaves are continually dropping spores on top of the potatoes in the bag. This is especially the case when in order to secure an early market the potatoes are dug whilst the tops are still green; so that, even if the tubers were clean to start with, it is practically a certainty that they would soon become affected, and, as a matter of fact, it is quite a common occurrence to find affected potatoes (from this practice) on tops of the bags, even when the bulk of the others are clean.



*Potato at a Later Stage, with Moulds Appearing.*

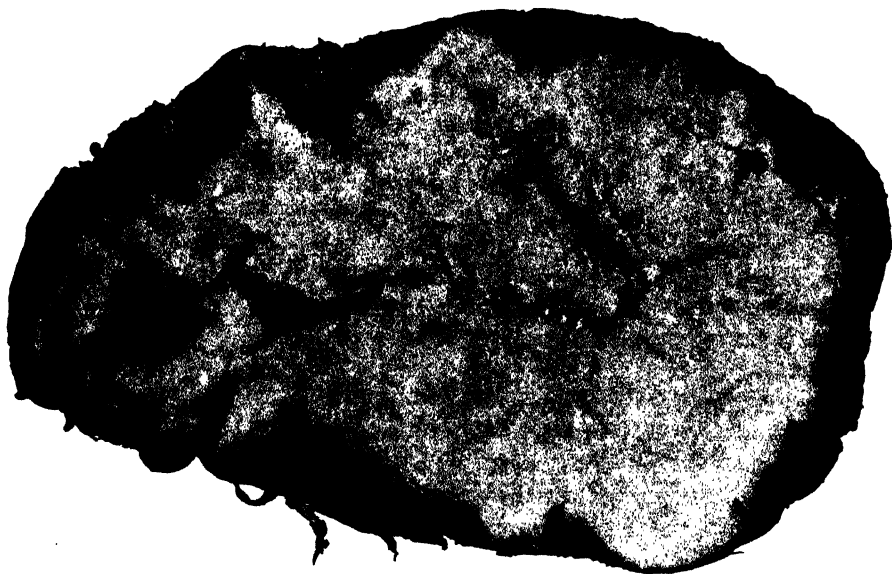
Govt. Printer, photo.

In setting potatoes it is also desirable to cut all used, as on cutting them disease may often be detected in potatoes that to all outward appearance are thoroughly sound.

#### DEPARTMENTAL EXPERIMENTS AND DEMONSTRATIONS.

As the Department considered it desirable to do some experimental spraying, and as experience in past seasons was to the effect that the later crops were always more injured than the earlier ones (many of which escaped serious injury), it was decided to spray a number of late crops in several of the principal potato-growing districts, and crops of from 5 to 12 acres were treated. From published reports in other countries it was considered that three sprayings would give ample protection to the crops, but, although possibly in ordinary seasons three

sprayings may be sufficient, during the past season they certainly were not; although the crops sprayed were decidedly very much better than the unsprayed ones. This was very noticeably the case towards the end of March, when, accompanied by the Dairy Expert, some of whose photographs are here given, the writer spent several days in the Ulverstone, Burnie, and Wynyard districts. We saw hundreds of crops, and all of these (with the exception of five that had been sprayed and were still green) bore the very plainest evidence of having been smitten by the blight, in most cases not a single green leaf being visible. Experience in Tasmania, however, has proved that although the tops may be completely destroyed by blight, a fair proportion—sometimes almost the whole—of the tubers may be saved. Of course such potatoes are



*Potato with Mottled Patches, characteristic of the Disease, near the Skin.*

Govt. Printer, photo.

smaller than they would otherwise have been, and consequently the tonnage per acre is less.

At one demonstration the pump sprayed through a crop in one direction, and through the same crop at right angles to the first direction. Soon after the spray was applied the crop was cut down by blight, except the sprayed rows, with the result that these showed up on the hillside like an immense T of green. At one of the experimental blocks, after one spray, the blight appeared, and completely cut down an acre at the side that was not sprayed. Two rows, also, had been accidentally missed, and these were easily picked out. At the ends of the rows a few plants were often missed, and these also could easily be picked out, as they were dead, while all the sprayed ones were green. Similar occurrences were often noticed during the season.

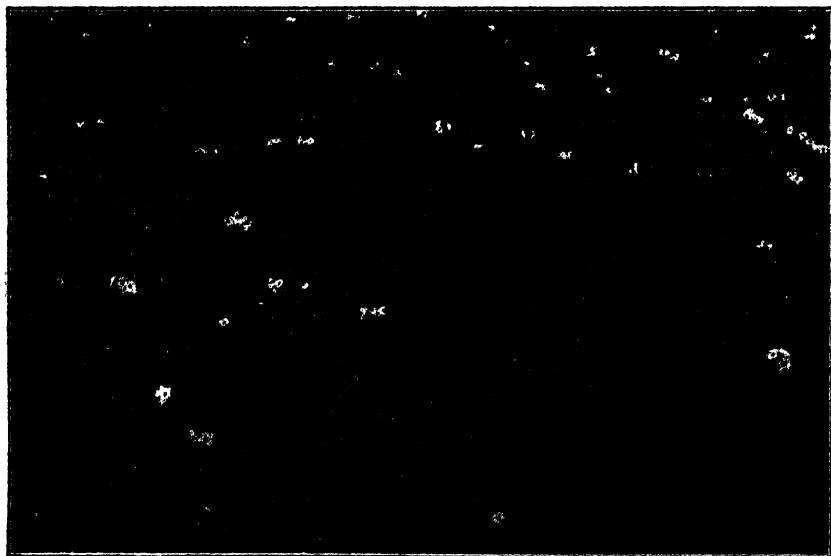
The places at which experimental spraying was carried out were:—

Sprent.	Wynyard.
Ulverstone.	Stowport Hill.
North Motton.	Sheffield.

The crops at these places were sprayed three times. After the first spraying, Preston was added, and a crop was sprayed there twice. In addition demonstrations were given at—

Forest.	Dunorlan.
Penguin.	Ringarooma.
Scottsdale.	

These sprays were all done with the "Fleming" machine; but in addition numbers of small plots were sprayed with a knapsack machine,



*Sprayed Potatoes near Burnie.*

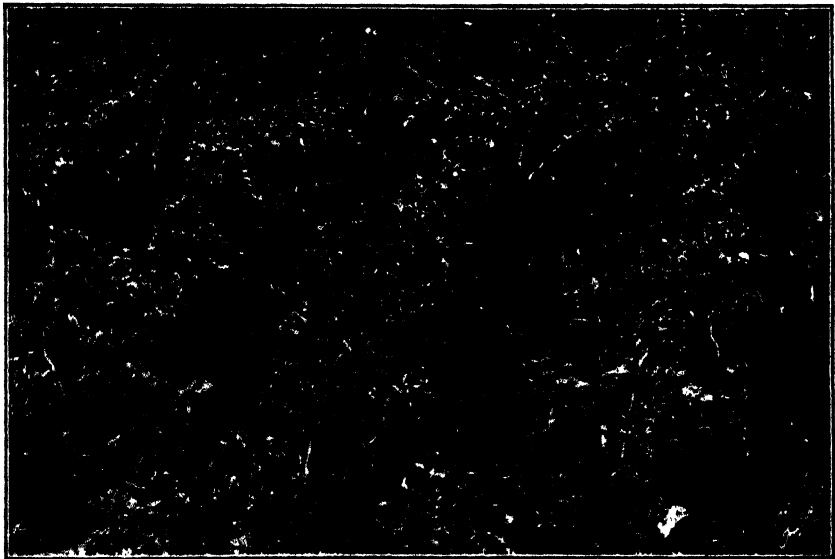
E. A. Winter, photo.

more to show the preparation of the Bordeaux mixture than from any expected benefit, as it was soon found that one spray alone was insufficient to save a crop.

In each experiment carried out by the Department an unsprayed block was left at the side for test purposes. These blocks invariably suffered more severely than the sprayed parts, but as the disease rapidly grows in damp weather, and is rapidly disseminated, it was seen that the disease spread from the unsprayed to the sprayed parts, and although these suffered less, the damage was so conspicuous close alongside the unsprayed blocks that should any future spraying be done by the Department it would appear to be advisable to spray the whole of the blocks; and should an adjoining farm be unsprayed, to give an extra amount of spray to the parts adjoining it.

The experiments were started with a three-row sprayer of local make, but this was found very unsatisfactory, and was soon replaced by a "Fleming" sprayer, the machine specially recommended by Prof. Kirk. This gave every satisfaction, although some slight repairs were rendered necessary owing to the rough treatment it received (it was travelled on its own wheels for hundreds of miles, and over some of the roughest roads in Tasmania).

The "Fleming" sprayer holds 58 gallons, can be filled in five minutes, and with an ordinarily active horse empties itself in 15 minutes. Three loads can be used to the hour, or 174 gallons of liquid, this being sufficient for 2 acres: so that 87 gallons are used to the acre.



*Adjoining Unsprayed Rows, destroyed by Irish Blight*

E. A. Winter, photo.

On the "Fleming" sprayer in action 15 jets are going at once—five to each side and 5 downwards: so that four rows are sprayed on both sides and two on one side only, the machine thus practically completely spraying five rows at once. With a slight wind the spray is often carried over several additional rows, and when very windy, is carried a considerable distance.

The cost of spraying with Bordeaux mixture, if made at the rate of 1 lb. of bluestone to 10 gallons of water (the ordinary strength), with a sufficiency of lime or soda, works out as follows:—

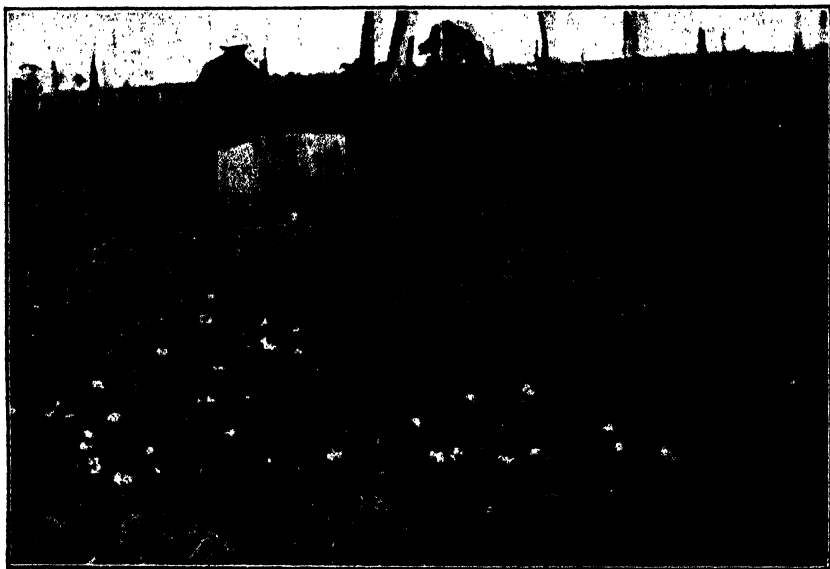
Bluestone, 3d. per lb. (28s. per cwt. in bulk lots).

Lime, say  $\frac{1}{4}$ d. per lb.

—  
Total cost, 3 $\frac{1}{4}$ d. for 10 gallons.

With the "Fleming" sprayer approximately 90 gallons (allowing for waste) were used to the acre. This works out at about 2s. 6d. per acre per application. If soda is used instead of lime the cost will be slightly more. Cost of labour, horse, and spray-pump is, of course, in addition.

A great amount of the opposition formerly expressed to compulsory spraying was due to the fear that the passing through the crop of a machine and horse would seriously injure the tops, and much of the interest taken in the demonstrations was due to this fear. In action it was found, however, that the machine and horse did surprisingly little damage to the crops, even when the tops were so dense that the drills could not be seen. Except at the headlands, usually no evidence of the



*"Fleming" Spray-pump in Operation.*

E. A. Winter, photo.

passage of the machine was visible, except the spotting of leaves by the spray material. Even at the headlands, a week after the spraying had been done practically no damage was visible.

Although the full results of the spraying experiments are not yet available, sufficient is known to prove that spraying is of very great benefit; also that even better results would have been obtained had the spraying been started earlier and continued later.

The drops of spray are an absolute protection to the parts of the leaves or stems on which they fall, and they will last for weeks, and in some cases for months; but as fresh leaves are continually being produced, it becomes necessary to spray these, hence it is desirable to spray at intervals of about a month, or, if the weather towards the end of the

season is very wet, even oftener. Moreover, when the plants are growing rankly many of the leaves escape the spray, and as the spores are often carried by the wind to such leaves (which, when wet with rain or dew, are particularly liable to attack), the disease may even appear on a sprayed crop, although, of course, in a much less severe form than with unsprayed crops.

As previously mentioned, full results of the sprays are not yet available, some of the crops being still in the ground, or at least not reported upon; but the grower at North Motton informs us that from 1 acre of



*Leaves showing Spots of Bordeaux Mixture Six Weeks after Application.*

A. Conlon, photo.

sprayed potatoes 32 bags of clean tubers were obtained; while from 2 acres unsprayed, he only obtained 28 bags, or 14 per acre. At Preston the grower stated that the unsprayed parts produced at the rate of 3 tons to the acre, and the sprayed 4 tons or more. At Wynyard the grower stated that the sprayed parts produced considerably more than the unsprayed ones. The Stowport Hill grower stated that the sprayed parts produced fully 50 per cent. more than the unsprayed.

For the use of the illustrations of the growing stages of the fungus I have to thank Mr. McAlpine, the Government Vegetable Pathologist of Victoria.



## FRUIT-CULTURE IN TASMANIA.

By JOHN OSBORNE, JUN., Horticultural Instructor.

(Continued.)

IN addition to the districts named in a previous article, land is available on the East Coast, extending from Forcett, Bream Creek as far as Swansea, at and near St. Helens, in the north-east, and in the Brighton and Richmond Municipalities.

While in the Derwent Valley most of the land near the river is occupied, there are large areas a few miles back from the present settlement that may be obtained by intending settlers.

On either side of the River Tamar are large estates that are being subdivided into blocks of convenient size that may be secured at a reasonable cost.

Going north-west, in the country lying between Whitefoord Hills and Devonport, much good land may be obtained, especially at and near Railton, Latrobe, Spreyton, Wesleyvale, Port Sorell, and at the Don. Although in the past very little fruit has been grown further west than the districts named, there are many situations that would be found eminently suitable were protection from the strong sea-breezes provided. The protection is obtained by planting suitable trees—the conifer, for instance, including the *Pinus radiata* (*insignis*) and *Cupressus lambertiana*, which are the best in use for the purpose named.

Clearing the land for orchard purposes is not the laborious and expensive operation it once was, the advent of the stump-extractor, “forest devil,” “Trehwella Jack,” “Samson” tree-puller, &c., having simplified the operation very materially. Heavily-timbered land may now be cleared at something near half the previous cost. In many cases, too, the timber, when cut up and sold as firewood, realises a sum almost sufficient to cover the cost of clearing. When the locations are too far removed to enable a sale of the timber to be made it is customary to dispose of it by means of large fires. The chief trouble in this operation is what is known as “logging-up,” which consists of drawing the logs (after being cut into length) into large heaps. A fire is then made, and carefully watched till the wood is consumed. Where possible, the work is done during the dry season, as the cost of the operation is then considerably less. Occasionally the settler has sufficient land on which to store the fallen timber. In such case it is usually drawn off by a stout team of bullocks.

The land is now ready for fencing, the nature of which depends on the situation. If hares or rabbits are to be found in the neighbourhood, it becomes necessary to erect what is called a “rabbit-proof” fence—composed of five No. 10 galvanised wires, with wire-netting 3 feet 6 inches high (6 inches to be turned under the soil). To make a strong fence the posts should not be more than 10 feet apart, with

stout wooden droppers (to which the wires are attached) placed 2 feet 6 inches apart.

The ploughing of the land may now be commenced, and, if time will permit, a heavy disc plough, with a strong team, should be put to work in order to turn the soil up as roughly as possible. It should then be left for a few weeks to allow the air to sweeten the lower stratum of the soil. If allowed to lay up to the influence of air and light for the time mentioned, it will be seen, on making an examination, that the surface of the lower stratum, where exposed, has become cracked, and is in a crumbling condition—a sure sign of exposure. When the autumn rain has moistened the rough soil sufficiently the swing-plough may be introduced, and another stage in the work of preparing for the orchard will be reached.

It sometimes happens that the rainfall is not sufficient to moisten the rough land in order to allow the breaking-down process with the swing-plough to proceed. The disc-harrows are then brought to bear on the rough soil, in order to reduce it to a finer condition. The land is then left till rain falls; and when this takes place it will be found that, as a result of the harrowing operation, the moistening process is more thorough. The plough may now be put in, and the soil still further prepared for planting. Should the land be close in texture a light subsoiling is a distinct advantage. This may be done by getting a swing-plough with the mould-board removed to follow behind the first plough, breaking up the subsoil to a depth of from 4 to 6 inches. This will allow the air to penetrate, and provide to a certain extent drainage that will take off the surplus moisture for some time. As soon as the ploughing is finished water furrows should be drawn to provide a good get-away for storm-water. It often happens that owing to a rush of moisture after a heavy rainfall the small particles of soil are forced together sufficiently close to exclude the air, a soft, dense mass, which has the consistency of birdlime, being formed. Roots thus covered soon perish.



TIME is an important adjunct to potash fertilisation, and, as a rule, should be added to a soil in large quantities wherever potash is applied. Will fruitgrowers please note.



## SOME POINTS WORTH THE ATTENTION OF TASMANIAN FARMERS.

By H. J. COLBOURN, Agricultural Chemist.

*(Continued.)*

### THE SOIL AND ITS LIME.

LIME exists in the soil chiefly in the form of the carbonate or sulphate, but it may also exist as nitrate, or indeed combined with any other acid that may happen to be present. The property which lime possesses of entering into combination with acids, thus producing a neutral harmless substance, or one which is capable of greatly benefiting vegetation, is one which makes it a very useful application for sour soils, which contain in their composition a considerable percentage of humic or other vegetable acids which are inimical to the higher forms of vegetation. To effect the latter purpose it matters little whether the lime is applied in the caustic (ground), the freshly-slaked, or the carbonate form, provided the lastnamed is in a finely-powdered condition and does not contain much silica. Silicate of lime is a very insoluble form of lime, and exists in moderate quantity in most soils, forming, in fact, part of the original rock from which the soil was derived. The cereals and grasses appear to be capable of deriving some of their lime from this source, as they do their potash; but for other plants this source of supply is of little or no avail. Hence, from the point of view of supplying crops with the lime they need as food, artificial supplies of this substance must from time to time be made to the soil. This is the case sometimes even with soils where limestone approaches within a few feet of the surface, since rain-water, which always contains carbonic acid, is capable, through this agent, of dissolving out the carbonate of lime with which it comes in contact and conveying it to lower levels. It is owing to the property of water containing carbonic acid being capable of dissolving carbonate of lime that leads to the formation of stalactites and stalagmites of caverns in limestone districts; the rapidity of the process being augmented whenever the water percolating through the upper layers of the soil meets with the accumulations of carbon dioxide gas which has been produced by the decay of vegetable matter—this gas forming carbonic acid when dissolved in water. It follows from this consideration that soils in good condition and containing abundant supplies of organic matter become more quickly depleted of their lime than those in a contrary condition. It is, moreover, always considered a safe proceeding to lime soils in good condition, whereas exhaustion of the supplies of plant-food other than lime usually follows the liming of poor soils. This last statement has reference to lime in the recently-burnt or decarbonated condition, whereas the application of carbonate of lime to a soil of moderate fertility cannot be other

than beneficial. It must be understood, however, that limestone must be ground to a very fine state of subdivision before it can be regarded as a suitable application for the soil unless the latter happens to be very sour, in which case the degree of fineness might not require to be carried quite so far. In England, chalk, which is a soft description of limestone, is applied to soils with benefit; but chalk imbibes moisture, and when this freezes, as it does during winter, the chalk crumbles to powder. The common limestone of this country would not act in this manner, partly because the frosts are not sufficiently severe, but chiefly on account of its hardness, which is attributable to the silica it contains, and which often amounts to 10 per cent. There are, however, deposits of carbonate of lime which are fairly soft in character, and would render themselves amenable to grinding without difficulty. If limestone of this character could be systematically dealt with and put on the market, no doubt its useful qualities would soon be recognised. It would be worth while to try finely-powdered limestone to the potato crop, which is a lime-consuming plant, but which appears to be rendered more susceptible to attacks of fungoid disease when burnt lime is used as a dressing, although the growth and yield of the crop may be augmented, supposing the season happens to be unfavourable to the development of such diseases. One action of burnt lime is to liberate potash from its mineral combinations in the soil; and another is to promote the formation of nitrate of lime, which results from the decomposition of the organic matter in the soil. These reactions naturally stimulate plant growth, whether of the higher or lower orders of vegetation, to which latter the fungus pests belong. Where rotation of crops is systematically practised, and the same crop does not occupy the land at shorter intervals than four or five years, the liability to fungus attack is reduced to a minimum. In the case of the potato the necessity for rotation is particularly apparent, because the stray seed potatoes left in the ground after harvesting the crop are liable to carry forward disease germs for another season; whereas the same germs would not be likely to attack other crops, and would die out when the ground became thoroughly clean.

*(To be continued.)*

# POULTRY.

By R. J. TERRY, Poultry and Pig Expert.

## SIMPLE AND CHEAP POULTRY-HOUSE.

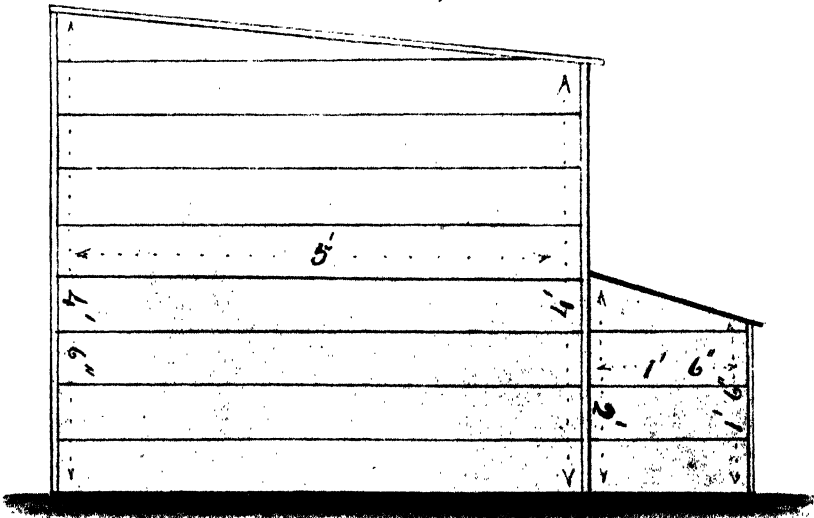
**I** THINK the above is a very apt heading, and is a combination that is desired by most, if not all, poultrykeepers. The illustrations require very little explanation, as size, quantities, and class of material for building, together with cost, are given. The perches rest on an ordinary brick; not made fast in any way. If a small piece of flannel is folded under the perch where it rests on the brick it forms a trap for fowl-mites. The floor is covered with fine earth or ashes, rendering the removal of droppings from the birds an easy matter. One or both doors may be closed, or by means of the prop may be opened at any angle. The house may be built any length, but the width should not be increased, as a narrow house is easier to clean than a wide one.

### MATERIAL FOR A SINGLE HOUSE.

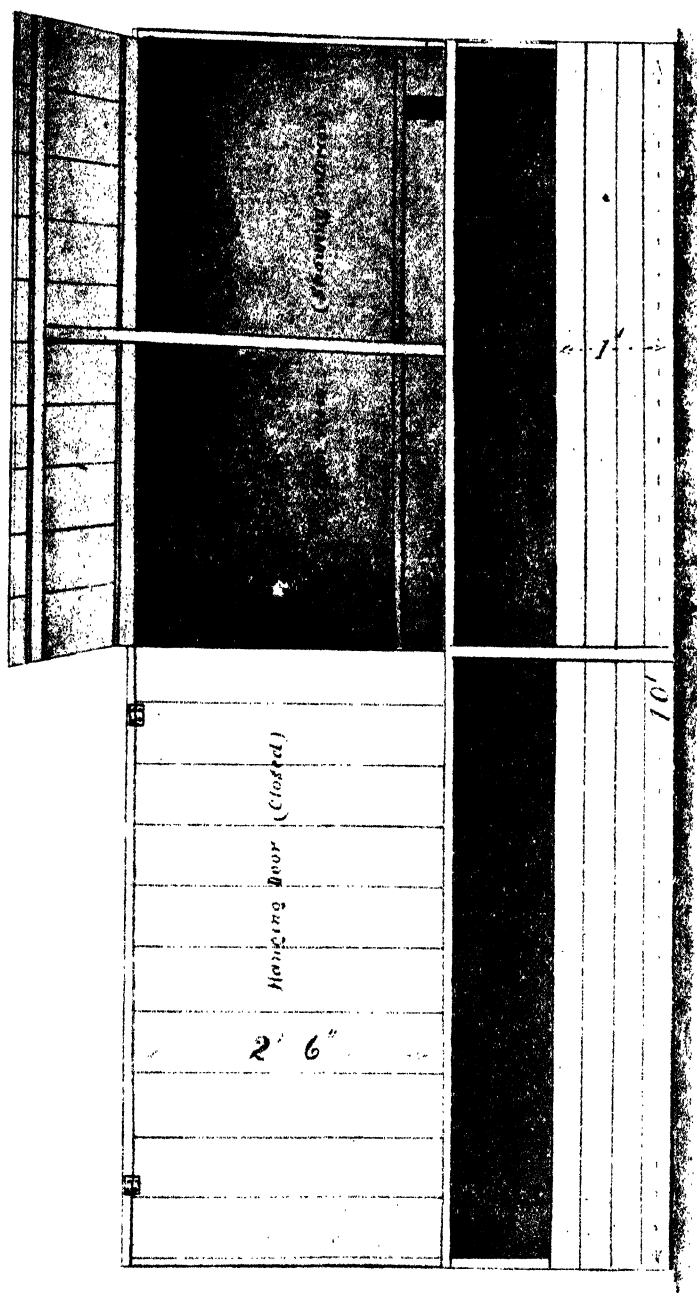
Foundation	2/10', 3" x 2", hardwood
Framework	10/10', 2" x 1", hardwood
Floor	5/10', 6" x 1", T. and G. pine
Palings	40/5'
Iron	3/5' sheets
Guttering and downpipe, and nails.	
Total cost, 15s.	

### MATERIAL FOR A DOUBLE HOUSE.

Foundation	3/10', 3" x 2", hardwood
Framework	15/10', 2" x 1", hardwood
Floor	10/10', 6" x 1", T. and G. pine
Palings	53/5'
Iron	5/5' sheets
Guttering and downpipe, and nails.	
Total cost, £1 10s.	



*Poultry-houses, East Launceston Poultry Yards—Side Elevation.*



*Poultry-houses, East Launceston Poultry Yards—Front Elevation.*

## THIRD TASMANIAN EGG-LAYING COMPETITION.

The following is the progress report for the first month of the third egg-laying competition conducted at the Springvale Tea Gardens, New Town:—

	Month of June.	Total.
1. White Leghorns, F. Hart, New Town ... ..	74 ...	74
2. White Leghorns, A. G. Genders, Launceston ... ..	54 ...	54
3. Silver Wyandottes, H. R. Taylor, Launceston ... ..	67 ...	67
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	29 ...	29
5. White Wyandottes, A. G. Genders, Launceston ... ..	83 ...	83
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	61 ...	61
7. Brown Leghorns, East Launceston Poultry Yards, Launceston ... ..	24 ...	24
8. White Leghorns, Williams Bros., Fingal ... ..	38 ...	38
9. White Leghorns, Briggs and Son, Longford ... ..	73 ...	73
10. Silver Wyandottes, W. T. Stephens, Beulah ... ..	71 ...	71
11. White Wyandottes, Rust Bros., Claremont ... ..	43 ...	43
12. White Leghorns, R. J. Sheriff, Hagley ... ..	48 ...	48
13. Black Orpingtons, G. Gilham, Launceston ... ..	9 ...	9
14. White Leghorns, J. J. Harvey, Riana ... ..	11 ...	11
15. White Leghorns, Mrs. B. Whittle, Launceston ... ..	35 ...	35
16. R.C. Brown Leghorns, Briggs and Son, Longford ... ..	16 ...	16
17. White Leghorns, A. Dickenson, South Bridgewater ... ..	45 ...	45
18. White Leghorns, Reid and Stride, Liverpool-st., Hobart ... ..	55 ...	55
19. White Leghorns, S. Ellis, Botany, N.S.W. ... ..	28 ...	28
20. R.C. Black Orpingtons, W. T. Stephens, Beulah ... ..	4 ...	4
21. Buff Orpingtons, A. G. Genders, Launceston ... ..	73 ...	73
22. White Leghorns, O. H. Olson, Karoola ... ..	71 ...	71
23. Black China Langshans, S. Ellis, Botany, N.S.W. ... ..	9 ...	9
24. White Orpingtons, E. E. Roberts, Franklin ... ..	3 ...	3
25. White Leghorns, Mr. B. Whittle, Launceston ... ..	47 ...	47
26. White Leghorns, L. J. Dowling, Devonport ... ..	16 ...	16
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ... ..	53 ...	53
28. White Leghorns, J. Crisp, Launceston ... ..	57 ...	57
29. White Leghorns, F. A. W. Gisborne, Risdon-road ... ..	65 ...	65
30. S.C. Brown Leghorns, W. H. Hale, Strahan ... ..	58 ...	58
31. White Leghorns, Mrs. Luke Williams, Moonah ... ..	23 ...	23
32. Black Orpingtons, A. Battin, Launceston ... ..	49 ...	49
33. White Leghorns, A. Terry, Sea View Hotel, Burnie ... ..	78 ...	78

## BOARDS OF AGRICULTURE.

The following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	H. Bennell	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Cressy	James Anderson	Cressy
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
East Tamar	W. Carnie	Newnham
Elliott	L. H. Shepherd	Elliott
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Geeveston	F. Hyndes	Geeveston
Glengarry	W. Wheldon	Glengarry
Glen Huon	P. H. Young	Glen Huon
Glenorchy	Hon. W. Clifford	Glenorchy
Harford	Geo. Sykes	Harford
Irish Town	E. L. Smith	Irish Town
Kimberley	H. Britton	Kimberley
Kettering	F. Hawker	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
King Island	A. Bertram	King Island
Leslie	R. C. Reid	Fern Tree
Lilydale	S. Wellington	Lilydale
Lymington South	T. Burnaby	Lymington
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marrawah	E. Bonhôte	Marrawah
Montagu	R. Ennis	Montagu
Meander	H. Evans	Meander
Mt. Seymour	W. Wilson	Mt. Seymour
Mowbray	G. H. Boatwright	Smithton
Mooreville-road	W. White	C/o W. Spinks, Mooreville-road
New Ground	A. H. Douglas	Moriarty
New Norfolk	B. R. Reynolds	New Norfolk
North Motton	O. Waters	North Motton
Nook	M. McInnes	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgley	W. Morris	Ridgley
Scottsdale	F. F. Tucker	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
Sheffield	O. Ridley	Sheffield
South Preston	R. G. Allison	South Preston
St. Helens	C. R. Bowling	St. Helens
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carins	Myrtle Bank
Sprent	A. Lee	Sprent

## BOARDS OF AGRICULTURE continued

BOARD.	HON. SECRETARY.	ADDRESS.
Staverton	T. Wootton	Staverton
Stoodley	J. Leo	Stoodley
Stowport	J. G. Pearson	Round Hill, Burnie
South Springfield	J. Molphy	South Springfield
Table Cape	H. J. Smith	Wynyard
Tyenna	F. M. Smith	Tyenna
Ulverstone	H. A. Nichols	Ulverstone
Upper Mountain River	A. Griffiths	Grove
Wattle Grove	K. Lord	Wattle Grove (Lower)
West Tamar	H. Robinson	Frankford
Wilmot	D. E. Forbes	Wilmot
Yolla	D. T. Jones	Yolla

## Avoca, June 7 and 20.

June 7.

**PRESENT.**—**MESSRS.** J. Conway (Chairman), H. Malkin, J. Macarthy, C. Rubenach, A. T. Rubenach, C. Davis, J. Rubenach, J. Parker, P. Rubenach, and G. Pratt (Hon. Secretary).

**HEMLOCK.**—Correspondence was read from the Director stating that the Board's surmise with respect to this undesirable weed was correct, and recommending that prompt measures be taken for its eradication. The Director congratulated the Board on its action in this matter. On the initiative of Mr. Parker it was decided that the Secretary communicate with the warden of the municipality, and suggest that steps be taken for the eradication of this weed, which can already be found a mile away from the township.

**CONFERENCE.**—Mr. Conway was appointed as delegate to the Launceston conference. On the motion of the Secretary it was resolved, "That in the opinion of this Board it is desirable, in the best interests of the State, that Mr. Benson's policy *in re* quarantine regulations should be supported by the Branch Boards throughout the State." The Board's delegate was instructed to support the policy of the Director at the conference.

**SHOW.**—On the proposal of the Chairman it was resolved that an agricultural and horticultural show be held under the auspices of the Board. It was pointed out that the display of produce, &c., would be valuable both from an educational standpoint and as an advertisement of the agricultural capabilities of the district. It was considered that March would be the most suitable month in which to hold the proposed show.

**NEW MEMBER.**—Mr. T. Bodkin.

June 20.

**PRESENT.**—**MESSRS.** J. Conway (Chairman), H. Malkin, A. Freeman, W. Ayres, H. Stanley, J. J. Rubenach, J. Macarthy, A. T. Rubenach, J. Shepherd, J. Parker, C. Rubenach, and G. Pratt (Hon. Secretary).

**CORRESPONDENCE.**—The Secretary explained that the meeting had been convened primarily to discuss a circular letter from the Employers' Federation (Hobart), asking that the Board send a delegate to its conference on the 23rd instant. After a short discussion Mr. Ayres moved the following resolution, which was carried:—"That the Secretary write to the secretary of the Federation to the effect that this Board considers that such matters as are likely to come under discussion at the conference do not come within the scope of the functions of Boards of Agriculture, which are more or less State institutions, and cannot be regarded as branches of a purely class organisation; and that therefore no delegate be sent."

**RESIGNATION.**—After reading a statement of receipts and expenditure, the Secretary tendered his resignation, as he was leaving the district. Mr. Pratt's resignation was accepted with regret, and a hearty vote of thanks was accorded him for his past services to the Board. Mr. H. Malkin was appointed Secretary *pro tem*.

**NEW MEMBERS.**—Messrs. H. Bennell, A. Freeman, G. Gough, and C. Foster.

### Barrington, June 10.

**PRESENT.**—Messrs. A. Roles (in the chair), J. A. Moore, A. Morey, D. Russell, J. Russell, J. Hutton, C. Packett, J. McNally, T. Williams, and A. E. Moore (Hon. Secretary).

**REGISTRATION OF DAIRIES.**—After a long discussion it was decided that, if registration fees were to be charged for dairies, the minimum should be 1s. for each cow up to five cows, with 5s. as the maximum charge.

**INSURANCE OF DAIRY HERDS.**—A scheme outlined by Mr. A. E. Moore for insurance of dairy herds against loss through an outbreak of disease did not meet with general approval. It was thought that the funds would all be absorbed in collection and general management.

**QUARANTINE.**—On the motion of Mr. A. Morey it was resolved, "That this Board favours the quarantine period remaining as at present." An amendment, moved by Mr. A. E. Moore, "That this Board accepts the Director of Agriculture's scheme as being preferable to the one now in existence," was, after a long discussion, lost by one vote.

### Carnarvon, June 10.

**PRESENT.**—Messrs. Tanner (Chairman), H. Frerke, Sen., A. C. Mathias, J. P. Mathias, A. Little, G. Eldridge, C. Trenham, G. Bellette, R. J. Stacey, G. Wellard, J. A. McArthur, W. Cotton, W. R. McGuinness, J. A. McGuinness, and D. B. Blackwood (Hon. Secretary).

**CONFERENCE.** A letter was read from the manager of the H.C.P. Coy. stating that the company would have much pleasure in granting a free return ticket to delegate from Taranna to Hobart, and enclosing same. A vote of thanks was passed to the company.

**VALEDICTORY.**—The Chairman expressed his regret at the departure from the district of an old and esteemed member of the Board (Mr. Cahill). On the motion of Mr. Eldridge it was decided that the Secretary convey to Mr. Cahill the Board's regret at losing his services as a member.

**IRISH BLIGHT.**—Responding to the invitation of members, the Chairman addressed the meeting on the subject of Irish blight, quoting from memory, as he did not have the pamphlets with him.

**LOANS TO FARMERS.**—Mr. Stacey initiated a discussion on Government loans to farmers. He contended that the Government should lend money to farmers at a low rate of interest, the State being in a position to give agriculturists better conditions than could be obtained from the lawyers. Regarding the Government charge of one-third interest to selectors of Crown lands, one member pointed out that the land in its virgin state was valueless as far as productiveness was concerned, and until selected it was bringing in nothing to the Government. Members considered that when a selector started to improve his selection he was adding an asset to the State, and were of opinion that it was unfair to charge him interest—thus compelling him to pay £1 6s. 8d. for land which he was supposed to get for £1. The general opinion was that the time of payment should be extended to 20 years. Mr. Stacey intimated his intention of moving the following motion at next meeting:—"That this Board is in favour of the Government giving financial assistance to small farmers on freehold properties as well as on selections." Members expressed the hope that other Boards would take this matter up.



### Clarence, June 10.

**PRESENT.**—The Hon. J. Murdoch, M.L.C. (Chairman), and Messrs. O. G. Morrisby, W. Young, A. L. Morrisby, A. O. Green, O. Chipman, R. Young, J. Young, J. Smith, F. Luckman, S. Salmon, H. Jolliffe, J. Cotton, W. C. Cato, T. Dawson, A. Chipman, T. Johnston, L. F. Giblin, J. O'May, W. Lamb, W. S. Westbrook, A. McDermott, and R. A. Black (Hon. Secretary).

**PAPER.**—The Secretary read the following paper, prepared by Mr. W. A. Goodwin, on "Lateral Growths":—"As there have been many opinions expressed as to the value of lateral growths on young fruit trees, I would like to take this opportunity of giving my own experience on the question. With regard to the Jonathan variety, I would say that during the first few years of its age I pruned it in accordance with the old system of leaving the straight limbs and no side shoots. Therefore I did not get many apples, but my experience told me that I was not right, so the following year, the trees being six years old, when pruning time came round I removed all inside lateral growths and left all the outside small laterals. Of course I did not leave any long shoots, but only those which I thought would form into nice fruit spurs. Following upon this plan I got splendid results; in fact, more than the trees could carry. One thing I must say as regards the laterals, and that is I got really good marketable fruit. My next experiment was with the Scarlet Pear-mains. Until I left all the short lateral shoots I could hardly detect the good fruit for bitter pit. This year over three parts of my Scarlets, as well as the New Yorks, are free from this disease. Anyone can, by encouraging the small lateral growths on the outside of fruit trees, get a splendid result. I do not recommend the long growths, as they are apt to swing about with the wind and break, and therefore damage the tree. The question as to whether young pear trees could be made to bear fruit earlier is one that I have been carefully considering. Many orchardists when they are pruning the pear tree trim it up to a few straight limbs. This, in my experience, does not appear to be a desirable or profitable practice to follow, because when these are removed all next year's pears are practically cut away, which no doubt many growers will admit is true. By my system I can make a pear tree bear almost as much fruit after the second year as can usually be obtained only after many years. My idea is that when one commences to prune young pear trees one should choose the main limbs first, and then if there are, say, four more left, take hold of the ends and twist them round the tree in opposite directions. Any fruitgrower who tries this system will in the second year get plenty of fruit off the branches that are tied round, and this will save him waiting for years for fruit, which, if only a few, are useful for eating purposes. On young plum trees I recommend the leaving of all laterals, because it is on these that fruit is borne. It is particularly so with me, but I may be wrong. For instance, I had a visit from a gentleman from Hobart, who said, when he saw my trees, 'You are the only man I have ever seen who can grow pears on a lot of young trees.' The early fruiting of my trees at once caught his eyes, and he said that he had not seen it before, and thought that it was a splendid idea. Many growers think that it makes the trees look ugly to follow this plan; but the small shoots only are wanted, and in the following year they can be shortened to one's own liking." Mr. O. Chipman said he quite agreed with Mr. Goodwin. It confirmed what had been his experience in this matter. He had never found an apple at the end of a lateral shoot to have bitter pit. It was always advisable to leave small laterals growing at right angles. Mr. Green said the Board was fortunate in having members who not only learned these things, but were willing to give the benefit of their experience to others. The paper was extremely valuable, but he did not know if there was anything very new in it. In the first place, trees must be properly grafted with scions taken from the fruiting wood, and if that were properly attended to, in most

varieties the fruit-buds would develop naturally quite as soon as the tree was able to support the fruit. It was essential, first, to grow a substantial tree and to develop the frame, and any throwing into fruit-bearing before this was accomplished was to be deprecated. The example of the Scarlet Nonpareil taken in the paper was not one of the best, as this variety naturally throws fruit-spurs, and in fact many Scarlets are permanently stunted by a too early bearing, and by taking on the fruiting habit before the frame of the tree is developed. In other trees, such as the Jonathan, and in some pears and plums, no fruit-spurs proper are made, and the fruit-buds (if any) are only found in the terminal bud of the lateral. Then if the ordinary rule of pruning is followed—the leaders headed back and laterals shortened to two or three buds—the tree will not bear, and is likely to remain barren, though may be luxuriantly wooded, for many years. If, on the other hand, the lateral growths are left with the terminal bud, this will probably fruit and bend the lateral down; the wood-buds along it will change to fruit buds or spurs for next year, and the branch can in the winter pruning be shortened, as may be desired to a fruit-bud, and will remain a permanent fruit-spur for a long time. If the terminal bud is not a fruit-bud the growth should be stopped, and the lateral kept bent down during the summer; then the same result will be brought about. It is quite exceptional for a properly-grafted tree, and one that has had the right treatment, to be too late in coming into bearing. Mr. Green also referred to another point—in his opinion a most important one—mentioned in the paper, viz., that the terminal fruit on laterals is free from bitter pit. Some few weeks previously he read an article in the "Mercury" by Mr. H. M. Nicholls on bitter pit. He had followed his articles for the past two or three years, and he rather pinned his faith upon Mr. Nicholls than upon the others who had spoken or written on bitter pit. Mr. Nicholls claimed to have proved that bitter pit was due in a large degree to a fungoid spore which entered the circulation of the tree through the pruning cuts. There was always a cloud of dust thrust over these large questions which closely interested the people. They had had a cloud of dust raised by some people on the mainland saying that bitter pit was caused by spraying with arsenate of lead. That simply hid the main question. He was quite ready to admit that there may be conducting causes, such as the want of drainage at the roots, for instance. If the tree was not in a healthy condition it could not throw off the fungoid spores which got into its circulation. They were very much indebted to Mr. Goodwin for bringing this matter before them. It was a most important thing to remember, that if trees would not naturally grow into fruit, the only thing to do was to cultivate lateral growths. The Chairman said they were much indebted to Mr. Goodwin, but many of the points mentioned by him had not been borne out by his experience. For instance, Mr. Goodwin said that Scarlet Nonpareils at the end of laterals did not have bitter pit. Well, he had never known Scarlet Nonpareils to be much troubled with bitter pit. He had New Yorks and Sturmers affected with bitter pit, but as they got older the disease seemed to go away. He did not believe it to be a good thing to make trees bear heavily when they were very young. It was not wise to get trees to bear almost before they were two years old. He agreed that the Jonathan required special treatment. Mr. O. Chipman said he did not think Mr. Goodwin intended to advocate making very young trees bear fruit. He was simply illustrating his contention. The Chairman had found that pear trees could not be kept shortened as advocated—the more they were cut the more they grew. Mr. Green: That misses the point. The main growths of the pear should be left upright and vigorous; the laterals only are to be treated so that a good frame is got to support the crop which will be borne on closely-spaced, short, lateral spurs. Mr. A. Chipman said they must be

guided by the growth of the tree. He moved a vote of thanks to Mr. Goodwin. These papers did an immense amount of good. The motion was agreed to.

**POTATO DISEASE.**—Mr. Salmon drew attention to a subleader in that day's "Mercury" on the subject of the disease known as black scab amongst potatoes in the United Kingdom, and suggested the need for stringent precautions to keep it out of Tasmania. The Secretary said there were very stringent Commonwealth regulations on the subject.

**AN OBSCURE DISEASE.**—Mr. Giblin asked if any member could tell him what disease it was that attacked fruit trees at the surface of the ground, extending a few inches below. The bark was attacked, and the trees ultimately died. Mr. Oscar Chipman thought the disease was probably that known as canker. The Chairman said he did not think the disease was universal. He had noticed a couple of healthy looking almond trees dying of it in Cambridge. Mr. Giblin said he had only noticed the disease in sandy districts. Mr. Rupert Young said it occurred in sandy orchards, where there was no clay subsoil. Mr. Green said that in his opinion it was caused by the blistering of the trees by the sun and the action of the sand combined.

**EUCALYPTUS TIMBER.** The reading of a paper by Mr. Cato on eucalyptus timber for fruit-cases was postponed till next meeting.

**CONFERENCE AT LAUNCESTON.**—The Chairman stated that he would be attending the agricultural conference at Launceston irrespective of being a delegate from the Board, and suggested that another member should be nominated. It was unanimously decided that if he could find it convenient to attend Mr. Oscar Chipman be the Board's delegate.

**UNIFORM STANDARD APPLE-CASE.**—Mr. Dawson brought up the subject of the standard apple-case, and after a little discussion, during which the Chairman pointed out that the standard case differed in the various States, the following resolution was agreed to:—"That in the estimation of this Board action should be taken at the earliest possible date to have a standard fruit-case adopted for the whole of the Commonwealth, such case to hold one imperial bushel, and that a copy of the resolution be transmitted to the Chamber of Commerce, Fruitgrowers' Union, Minister for Agriculture, and Director of Agriculture."

### Forth, June 9.

**PRESENT.**—**MEMBERS.** M. Barker (Chairman), E. Vertigan, G. Wellard, A. Cullen, W. Cash, J. G. Pike, and H. A. Vertigan (Hon. Secretary).

**NEW MEMBER.**—Mr. Jensen.

**CONFERENCES.**—Mr. Pike's report regarding his attendance at the Ulverstone conference was received and adopted. The Secretary reported that a conference would be held at Launceston on 15th and 16th instant.

**BINDER TWINE.**—A letter was read from Mr. J. G. Pike stating that there is likely to be a considerable reduction in the price of binder twine shortly, and advising members to be careful in placing their orders.

**CO-OPERATION.**—Mr. Pike addressed the meeting at considerable length on the advantages of co-operation. He was accorded a hearty vote of thanks for his address.

**CONGRATULATORY.**—Mr. Pike proposed the following resolution, which was carried:—"That the Secretary convey to Mr. H. Hays the congratulations of the Board on his election as a member of the House of Assembly for Wilmot, the Board believing that his election will prove a distinct advantage to this agricultural district."

**SOCIAL.**—Final arrangements for the social to be held at next meeting were left in the hands of the Chairman and Secretary.

**Glenorchy, June 12.**

**PRESENT.**—Messrs. T. Barwick, A. Sawyer, S. E. Shoobridge, L. Murdoch, H. Inches, G. M. Hickman, E. J. Salter, J. Bayley, W. Forsyth, W. P. Coverdale, and the Hon. W. Clifford (Hon. Secretary).

**NEW MEMBERS.**—Messrs. Thorold, W. Cooper, E. Cruickshank, A. Bayley, J. Nunn, W. Echlin, A. Cruickshank, D. Butler, G. Harley, J. Hallam, H. S. Wright, C. Ellis.

**CHAIRMAN.**—Mr. T. Barwick was elected Chairman.

**SUBSCRIPTION.**—The subscription was fixed at 1s.

**DAY OF MEETING.**—It was arranged that the Board meet on the second Tuesday in each month.

**QUARANTINE.**—The following motion, moved by Mr. Murdoch, was carried:—  
“That in the event of the quarantine of cattle being brought forward this meeting is not in favour of any relaxation of the quarantine regulations, and that the representatives at the conference (Messrs. S. E. Shoobridge and W. Clifford) be requested to vote against any relaxation at present.”

**POTATOES.**—On the motion of Mr. Hallam it was decided that it be an instruction from this Board that in the event of any proposal for marketing potatoes from any unclean district our delegates oppose strenuously any attempt to send diseased potatoes from such district or municipality to a clean one without local inspection.

**Kindred, June 12.**

**PRESENT.**—W. Polden, Sen., L. Vertigan, H. Arnold, T. D. Lewis, G. Weindorfer, G. Medwin, J. J. Filluel, I. Howard, and C. C. Polden (Hon. Secretary).

**EXPERIMENTAL PLOTS.**—A long discussion took place on the need for establishing experimental plots, members being unanimously of opinion that such plots were necessary, but that they should be established in each municipality, as varieties of seeds that might suit one district might possibly be of little or no use in another district.

**QUARANTINE.**—Members were opposed to any alteration in the quarantine laws, being of opinion that the risk of introducing disease outweighs any advantage that might be gained by a relaxation of the present regulations.

**Lymington, June 7.**

**PRESENT.**—Messrs. J. Parnham (Chairman), C. Devereux, P. Cranny, E. B. and S. Cross, E. Pixley, F. Stanton, T. Mills, H. Kruse, W. H. J. Kruse, and T. Burnaby (Hon. Secretary).

**TREES.**—A reply was read from the Director *in re* young trees, and the Secretary was instructed to refer same to the municipal council.

**DELEGATE.**—It was decided that Mr. Pixley be delegate to the Launceston conference.

**LECTURE.**—It was decided to ask Mr. Nicholls to give a lecture on “Bitter Pit” at next meeting or on some convenient date.

**CO-OPERATION.**—A discussion on co-operation of fruitgrowers took place, and it was decided to hold over till next meeting any definite action *in re* same.

**PAPER.**—The Chairman was thanked for his paper on “Bitter Pit.”

**Mooreville Road, June 12.**

**PRESENT.**—Messrs. W. Spinks (Chairman), J. M. Douglas, T. Redman, A. J. Spinks, J. Connolly, A. Pease, R. Laird, G. E. Russell, L. C. Russell, A. J. Redman, and W. White (Hon. Secretary).

**CONFERENCE.**—The Board's delegate (Mr. Laird) to the Launceston conference was instructed—(1) To support the relaxation of the quarantine laws, as proposed by Mr. Benson; (2) to oppose the introduction of new seed from oversea countries; and (3) to support the registration of bulls, at a fee of £1.

### St. Helens, June 22.

**PRESENT.**—Rev. J. A. Travers (Chairman), Dr. Smellie, Messrs. J. W. Thompson, T. Haley, G. H. Briggs, H. Grant, J. H. Barber, C. M. Fairclough, W. P. Kirwan, G. C. Smith, and C. R. Bowling (Hon. Secretary).

**CORRESPONDENCE.**—A letter was read from a gentleman in Ceylon asking for full particulars of orcharding at St. Helens—price of land, cost of clearing, climate, &c. The Secretary was instructed to supply the information required.

**NEW MEMBERS.**—Several new names were added to the roll of members.

**RULES.**—The draft rules were presented by the sub-committee, and adopted.

**DELEGATE'S REPORT.**—Mr. Thomas Haley, the delegate to the agricultural conference held at Launceston in June, presented his report to the meeting. He was most cordially received by the Director of Agriculture (Mr. Benson) and by the Agricultural Organiser (Mr. Evans). He considered the work of the conference of the greatest importance to Tasmania in general, and was confident that it laid down the course of big and good results. Mr. Haley confessed himself surprised at the increasing interest taken in St. Helens as an orcharding district. He found in unexpected quarters very accurate knowledge of our mild climate and suitable conditions for fruit-growing; and he felt confident that the interest in St. Helens and the keen desire for further information would lead to a practical recognition of the attractions the locality offers to possible settlers.

### Stoodley.

**PRESENT.**—Messrs. W. Bannon, T. Tyler, J. Cook, J. Collins, W. Scanlon, Sen., W. Scanlon, Jun., J. Powlett, G. Nolan, P. Leo, and J. Leo (Hon. Secretary).

**RURAL WORKERS' UNION.**—The resolutions adopted by the Rural Workers' Union were discussed, members being astonished at the demands proposed to be made on behalf of farm labourers.

**EMPLOYERS' CONFERENCE.**—It was resolved to call a special meeting for the purpose of sending a delegate to the Employers' of Labour conference to be held at Hobart.

**FORESTRY.**—General regret was expressed at the inability of the Department to supply the Board with young trees, as promised by the Secretary when on tour. It was resolved to thank the Director for the several packets of seeds received.

### Stowport, June 12.

**PRESENT.**—Messrs. W. A. Caruthers (Chairman), A. Little, T. N. Atkinson, W. Viney, W. Rutherford, W. Jennings, J. W. Elphinstone, T. S. Rutherford, R. Rutherford, Jun., and J. G. Pearson (Hon. Secretary).

**NEW MEMBERS.**—Messrs. H. Heyward, H. N. Sleigh, and M. Smith.

**IMPORTATION OF SEED POTATOES.**—The following motion, moved by Mr. H. N. Sleigh, was carried:—"That the delegate to the Launceston conference be instructed to move the following motion: 'That the Government be requested to import from Scotland 1000 tons of the best blight-resisting varieties of potatoes; these to be distributed to growers through the medium of the Boards of Agriculture at cost price—no individual to receive more than 3 cwt.'"

**CO-OPERATION.**—Mr. Jas. Morris spoke at some length on the benefits which would accrue to farmers if they would co-operate in the marketing of their produce. He stated that he was drafting a scheme for a co-operative company, to be known as "The Tasmanian Producegrowers' Agency, Limited." This company would be purely a selling company, and would act as selling agent for the farmer. The farmer would thus get the full value for his produce, less a small commission to cover expenses, and would also have the very great advantage of a "square deal." Mr. Morris was accorded a vote of thanks for his address.

**St. Patrick's River and Myrtle Bank, June 12.**

**PRESENT.**—Messrs. J. M. Peck (Chairman), W. Richards, J. Whitcombe, S. Teece, and W. A. Carins (Hon. Secretary).

**LOCAL ROADS.**—An informal discussion took place on the state of the local roads and the class of metal which was being used in places. The local councillor was supported in the stand he had taken against what was described as inferior work.

**COWSHED OR OPEN-AIR MILKING.**—The Secretary read a paper on "Cowshed or Open-air Milking." In the course of the discussion the superiority of cowsheds was left beyond question. In summer time, however, it was considered that the fresh morning air was so agreeable that cowsheds should be discarded until the weather changed.

**RAINFALL.**—Mr. Richards presented his report of the local rainfall for May. During the month 362 points of rain fell, making 2298 points since the beginning of the year.

**Wattle Grove, June 16.**

**PRESENT.**—Messrs. H. W. Smith, W. C. Jones, T. K. Wilson, F. Leech, G. Wilson, and K. Lord (Hon. Secretary).

**CHAIRMAN.**—In the absence of Mr. E. Baldwin, Mr. H. W. Smith was voted to the chair.

**CORRESPONDENCE.**—A circular was read from the Secretary of the Tasmanian Fruitgrowers' Union in regard to the correct naming of apples and pears. Mr. E. Baldwin was appointed as delegate to attend a conference for that purpose.

**EAST TAMAR FRUITGROWERS' ASSOCIATION.**

*June 12.*

R. J. McKenzie, Esq., M.H.A., all the officers, and about forty members attended the first regular meeting on above date.

**CORRESPONDENCE.**—Correspondence was read from—(1) Those members of Parliament who had not been present at the inaugural meeting, and could not attend this night. Each of these congratulated the Association on its objects, and promised all possible assistance to the movement. (2) Mr. W. C. Grubb, accepting the position of Patron, and expressing approval of the Association and its objects. (3) Mr. Booth, regretting inability to act as delegate. (4) Mr. Finch, of West Tamar, asking co-operation in obtaining services of Fruit Expert. (5) Director of Agriculture and Horticultural Expert, in re visits of the latter on June 13 and 14. (6) Employers' Federation, asking that the Association send a delegate to its conference. Mr. J. Likeman was unanimously appointed as delegate to the agricultural conference in lieu of Mr. Booth. It was decided that Mr. Finch's letter be handed to Mr. Osborne during his visit on the 13th.

**SPRAYING.**—Messrs. R. J. McKenzie, Scifleet, Archer, and others spoke in strong terms about the adulteration and inefficacy of various ingredients for spraying purposes. It was resolved that the delegates be instructed to bring before the conference the necessity for introducing legislation to ensure a standard of purity; also that they should not support any clause making spraying of potatoes compulsory, since its effectiveness is not yet established. Further, that they ask the conference to support an amendment of the "Codlin Moth Act" exempting trees four years old or under.

**ANNUAL SHOW.**—Mr. McKenzie's motion that a sub-committee be appointed to make enquiries into the matter of holding an annual show under the auspices of the Association, to report at a later meeting, was accepted unanimously.

**NEW MEMBERS.**—Six new members were enrolled.

**RULES.**—The remainder of the evening was taken up with adoption of a comprehensive set of rules.

# METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING JUNE, 1911 AND 1910.

Station.	1911.	Wet Days	1910.	Average.
<b>NORTHERN.</b>				
Marrawah ... ..	701	22	745	700
Cape Grim ... ..	544	21	588	493
Sunny Hills ... ..	—	—	935	—
Irish Town ... ..	667	24	998	—
Black River ... ..	464	18	541	523
Stanley ... ..	356	23	578	430
Flowerdale ... ..	—	—	701	—
Flowerdale Upper ... ..	590	16	855	707
Yolla ... ..	660	26	1129	851
Wynyard ... ..	512	20	672	—
Burnie ... ..	550	19	677	502
Ridgley ... ..	585	19	1043	—
Ulverstone ... ..	465	12	643	604
Kindred ... ..	495	15	—	—
Devonport ... ..	411	18	613	545
Latrobe ... ..	—	—	595	536
Northdown ... ..	309	11	610	364
Beaconsfield ... ..	583	16	578	—
Low Head ... ..	397	23	460	355
Black Bluff ... ..	—	—	1789	—
Moina ... ..	513	22	—	—
Central Castra ... ..	448	13	860	697
Wilmot ... ..	480	14	—	—
Gawler ... ..	—	—	653	638
Sheffield ... ..	378	12	379	—
Deloraine ... ..	392	11	537	444
Caveside ... ..	328	12	745	—
Cressy ... ..	226	18	326	251
Longford ... ..	284	17	354	304
Westbury ... ..	348	16	523	376
Carrick ... ..	281	14	387	—
Launceston ... ..	488	19	349	342
Glengarry ... ..	528	16	657	561
Frankford ... ..	—	—	816	535
Exeter ... ..	570	14	532	—
Lilydale ... ..	—	—	555	437
St. Patrick's River ... ..	764	17	—	—
Springfield ... ..	994	22	888	839
Springfield South ... ..	—	—	801	—
Scottsdale ... ..	620	17	629	556
Branxholm ... ..	880	15	916	—
Ringarooma ... ..	785	15	932	982
<b>WEST COAST MOUNTAIN REGION.</b>				
Whale Head ... ..	—	—	450	—
Mt. Balfour ... ..	—	—	903	—
Magnet ... ..	1071	21	1110	—
Waratah ... ..	1092	29	1225	958
Que ... ..	667	22	—	—
Tullah ... ..	755	22	945	—
Renison Bell ... ..	1195	24	—	—
Mt. Read ... ..	1585	28	947	1143
Dundas ... ..	1156	25	—	—
Zeehan ... ..	1355	24	1220	975

## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Mt. Lyell ... ..	1014	25	1075	1011
Queenstown ... ..	995	24	1031	—
Strahan ... ..	—	—	862	601
Cape Sorell ... ..	—	—	813	656
Pillinger ... ..	917	23	1003	—
CENTRAL PLATEAU.				
Great Lake ... ..	—	—	—	361
Bronte ... ..	210	17	—	—
McGuire's Marsh ... ..	151	13	—	—
Woods' Quoin ... ..	213	19	—	—
Interlaken ... ..	175	7	368	318
DERWENT VALLEY.				
Glenmark ... ..	—	—	415	—
Bashan ... ..	—	—	382	335
Osterley ... ..	102	8	—	—
Bothwell ... ..	114	14	227	213
Cleveland ... ..	144	9	—	—
Hamilton ... ..	102	17	198	183
Ellendale ... ..	228	19	624	353
Glenora ... ..	148	13	275	205
Belmont ... ..	—	—	162	183
Clarendon ... ..	110	11	215	196
New Norfolk ... ..	151	16	349	217
Uxbridge ... ..	168	14	518	340
Lachlan ... ..	147	10	395	310
SOUTH-EASTERN.				
South Bruni ... ..	259	14	440	384
Adventure Bay ... ..	408	15	—	—
Southport ... ..	344	—	533	463
Lunnawanna ... ..	252	12	382	—
Port Esperance ... ..	—	—	501	401
Port Cygnet ... ..	262	15	424	—
Petchey's Bay ... ..	245	16	421	—
Middleton, Channel ... ..	294	18	514	—
Kettering ... ..	418	17	550	—
Franklin ... ..	257	9	—	366
Kingston ... ..	176	12	—	—
Mt. Nelson ... ..	152	9	307	267
Mt. Wellington (Gap) ... ..	398	—	765	473
The Springs ... ..	385	20	753	616
Hobart Observatory ... ..	189	19	357	221
Hobart Botanical Gardens ... ..	160	11	313	235
Hobart Waterworks ... ..	194	14	489	345
Glenorchy ... ..	—	—	386	270
New Town ... ..	—	—	—	252
Bellerive State School ... ..	163	16	329	214
Lindisfarne ... ..	125	10	264	—
Rokeby ... ..	—	—	278	234
Sandford ... ..	155	9	275	229
Premaydena ... ..	236	13	311	317
Carnarvon ... ..	342	21	428	507
Sorell ... ..	143	12	270	220
Cambridge ... ..	—	—	195	204
Craigow ... ..	—	—	236	—
Richmond ... ..	124	10	225	214
Brighton ... ..	121	11	204	166
Tea Tree ... ..	138	11	223	—



## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Bagdad ... ..	128	11	205	255
Broad Marsh ... ..	103	8	220	—
Kempton ... ..	115	16	190	208
MIDLAND.				
Spring Hill ... ..	120	11	242	249
Jericho ... ..	134	10	244	—
Mt. Seymour ... ..	195	12	340	247
Oatlands ... ..	148	26	273	232
Bow Hill ... ..	136	11	—	—
Andover ... ..	—	—	215	223
Woodbury ... ..	115	16	252	—
Beaufront (Ross) ... ..	105	8	223	176
Bendeemer ... ..	159	15	365	313
Glen Connell ... ..	—	—	309	268
Campbell Town ... ..	—	—	245	191
Hanleth ... ..	220	10	402	218
EAST COAST.				
Kellevie ... ..	—	—	464	—
Buckland ... ..	202	10	392	—
Triabunna ... ..	166	9	433	244
Louisville ... ..	175	13	—	—
Swansea ... ..	83	15	427	323
Riversdale ... ..	90	7	505	250
Cranbrook ... ..	96	6	412	258
Lake Leake ... ..	216	14	521	412
Ormley ... ..	135	11	434	300
Fingal ... ..	—	—	646	335
Cullenswood ... ..	176	16	1132	375
St. Mury's ... ..	159	8	893	—
Tower Hill ... ..	—	—	812	—
Mathinna ... ..	198	13	857	397
Scamander ... ..	119	6	494	245
St. Helens ... ..	199	16	526	375
Gould's Country ... ..	372	14	867	605
Lottah ... ..	722	23	1484	904
Eddystone Point ... ..	199	—	601	311
Boobyalla ... ..	296	15	376	—
KING ISLAND.				
Cape Wickham ... ..	—	—	497	390
Yambacoona ... ..	642	25	497	371
Currie Harbour ... ..	572	26	542	—
Monk Breton ... ..	—	—	691	—
Surprise Bay ... ..	—	—	643	—
The Chalet ... ..	716	23	—	—
FLINDERS ISLAND.				
Thule ... ..	476	15	566	393
White Mark ... ..	415	19	—	—
OTHER ISLANDS.				
Kent Group ... ..	—	—	299	—
Goose Island ... ..	269	11	430	299
Cape Barren Island ... ..	421	19	578	—
Swan Island ... ..	296	15	327	—
Mnatsuyker Island ... ..	—	—	306	396

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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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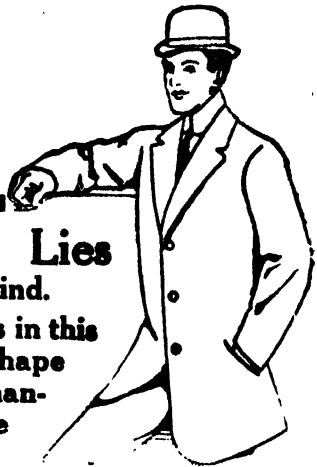
## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

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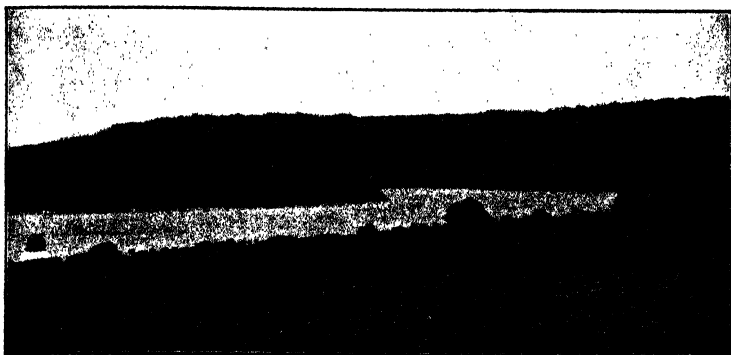
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## THE APPLICATION OF NITROGENOUS MANURE.

**S**PRING is the period when a rapid uprush of vegetation takes place; a natural response after the period of rest which has occurred in the winter season. Weeds or the plants "out of place," and not wanted for the special purpose the ground is under crop for, seem to possess a great capacity for revealing themselves. In some seasons, especially after copious winter rains and cold periods, there is an absence of nitrogenous material in the soil, and the crop proper shows a rather pale tinge in colour. This is the time when considerable help can be given the young plant by scattering a small quantity of a readily-soluble fertiliser, like the commercial nitrate of soda.

Nitrate of soda is found in the rainless regions of Peru, in South America. It is a salt derived from the chemical combination of nitric acid and sodium. The theory of its derivation is that vast inland salt-water lakes containing kelp, upheaved by volcanic action, have dried out, and the nitric acid derived from the decay of the seaweed has combined with the sodium of the salt water.

The special manurial value of nitrate of soda is that it is in this form that the young rootlet first absorbs its food. Any other form of nitrogen, whether organic (such as is met with in vegetable matter—dung, &c.) or sulphate of ammonia, must be acted upon by the germs in the



soil, and so converted into nitric acid, which usually combines with the lime and forms nitrate of lime.

Dependent as is the formation of nitric acid upon the soil bacteria which are not active during cold weather, it is quite possible for the young plant (after a wet winter, when the nitrates formed during the previous autumn have been washed away) to find itself in an environment in which it is starved for want of nitrogen. It is in circumstances of this kind, guided by the appearance of the crop, that the farmer can step in and, by employing a small quantity of nitrate of soda, bring the crop away in a remarkable manner, thus bridging over the period prior to warm weather and nitrate-formation coming along.

Cereals, by reason of the period they occupy the ground and complete their life-history, are in marked contrast to root crops. The wheat plant appearing in the winter and growing through the spring has passed its flowering stage before warm weather prevails. This means that it is dependent upon its nitrogen for those nitrates which have been formed in the previous summer and autumn, and which have not been washed away into the recesses of the soil below by winter rains; or else it must get the scanty supply of nitrogen made available during the spring.

Now, cereals cease to absorb nitrogen after the flowering stage, which is never later in this country than early summer, whereas the mangold and turnip, also our friend the potato, are conspicuous by comparison for the rapid growth they make after Christmas. In their case bacterial activity is at its height, and the roots revel in their food-supplies, provided the season is not droughty.

Nitrogen, either inherent in virgin soil, or applied as a fertiliser, acts specially on the vegetative organs of a plant, and produces abundance of cell tissue. This condition in the plant, backed up by the presence of sufficient of the mineral ingredients either derived from the soil or specially applied, results in the production of heavy crop-yields at harvest time. This full expansion of the vitality of the plant was formerly considered to be exhaustive to the soil, which it is, and which it really is not. If by the absence of nitrogen in the soil a farmer only secures a 15-bushel crop of wheat, the capital account of the soil is not heavily taxed. Should a stimulant be provided, and the yield rise to 30 bushels, the soil has been depleted to the extent of the increased yield; but the farmer increases his banking account accordingly, and where the logic of the old argument that nitrate of soda is a "scourge" comes in it is very difficult to conceive. Any special manure which increases a crop will have the same effect, because that is the special object of its application; but, when the desired result is secured, to turn round and condemn the agent of success is bordering upon the ridiculous.

Whenever conditions are found to exist in a soil that the presence of mineral ingredients is so low that their abstraction in the form of crop material will deplete the soil below the margin of profitable agriculture, the proper course to pursue is to see that their annual abstraction is

made good by artificial fertilisers. An alternative course, and undoubtedly a better one, is to follow a system of rotation that results in increasing the fertility of the soil rather than otherwise. By fallowing, green manuring, and the employment of stock, the proportion of available mineral material in a soil can be gradually increased and the fertility of the soil built up, as distinct from the annual yield of a grain crop supported by heavy drafts from the fertiliser factory.

As regards the amount of nitrate of soda to be employed, it is small. A slight variation may be necessary, but, generally speaking, 1 cwt will be ample; a smaller quantity in some special circumstances.

The object in view being to feed the crop, and not the soil, it is rather more important that whatever amount is used should be applied in two lots, with an interval of, say, three weeks between each application. Each portion of the nitrate should be mixed with twice its bulk of salt or sand, which enables a more even broadcasting to be done.

Late applications of nitrate should be very cautiously applied, because of the tendency this manure has to produce straw rather than corn, and delay maturation. By its diffusive power it will encourage a deep-rooting habit, the roots following the nitrate as it sinks towards the subsoil. The cultivation the soil receives in being prepared in the spring for oats and barley aids nitrification, and these crops, generally speaking, stand less in need of a nitrogenous manure than wheat; further, in the case of barley, the malting qualities are likely to be injured unless great judgment is exercised in applying this fertiliser.

As nitrate of soda is not a complete manure, it will be readily understood that the best results from its application will only be obtained when the soil contains the necessary phosphates and potash to provide a crop, and for this reason clay land is considered to be the most suitable for its application; the soda which the nitrate contains, although not a plant food, is credited with helping to free potash and other alkalies in the soil.

The cost of this fertiliser—14s. per cwt.—is somewhat against its general application, but, as stated above, the amount required per acre is small, and a trifling outlay could be made to demonstrate its value. The point to recognise is, that it should be applied when the crop shows need of it, and unless the benefit is derived in the season of application it does not remain long in the upper layers of the soil.

In the case of sulphate of ammonia this can be applied in the autumn on account of the absorptive properties of the soil towards ammonia.

The question of mixing manures is an important one, and a useful illustration in respect to this practice will be found on page 412.

## CONFERENCE OF PIG-BREEDERS.

Held at Albert Hall, on Thursday, July 13, 1911.

A CONFERENCE of representatives interested in pig-breeding and pork and bacon production was held on the above date, under the presidency of Mr. R. J. Terry (Poultry and Pig Expert). The Director of Agriculture (Mr. A. H. Benson) was present, and there was a good attendance.

Mr. Benson welcomed the delegates, and said that unfortunately at the recent conference time did not permit of the pig-breeding industry being discussed at the length it deserved. They should discuss the business aspect of the matter. There had not been very good prices lately, but he thought that the trouble arose on account of the supply being congested at the one period of the year. When the retailer could get his supply only at one period of the year, the consuming public was only partially educated. It was the department's duty to push every branch of the agricultural industry. He hoped as a result of their deliberations some good, solid work would be done.

Mr. Terry said he did not want so much to discuss the troubles of the present moment. The glut in the market was not an isolated case, but this year it was far greater than it had been in past years. It was only a short period since he was on the North-West Coast—not to enquire into the glut, but on the shortage, of bacon pigs. They would have to guard against a possible shortage in the near future. The same thing applied to all products. Men who watched the tendency of the markets made money. When he was on the North-West Coast only four months ago he found there was a considerable shortage of fat pigs for bacon purposes. The shortage obtained for about six months of the year. The bad harvest and discoloured grain in abundance was somewhat responsible for the glut at present. He also found that at certain periods of the year store pigs were sold at an inflated value, and thus did not show a profit. He saw stores 90 lb. in weight average 6d. per lb. They were topped up, and sold at 4d. per lb. The bacon-curer could not be blamed for that kind of thing. The pig industry had been unduly boomed. Many farmers expected too much. The pig to a great extent should be a scavenger, and the by-products on a farm, which had to be utilised, would go to a large extent in the feeding of the pig. He had met certain bacon-curers who, to keep up their supply, had to purchase half-fats and finish them off. The bacon-curers were not in the same position to top off the pigs as the farmer, and if the former could do the finishing off without making a loss the farmer should be in a position to show a profit. The matter of strain, just the same as in poultry, was well worth the farmers' consideration. One thing that surprised him was the small number of farmers who kept breeding sows. It was the thing that would put the industry on a sound footing. If it paid a

man to grow stores and sell them, it surely would pay the farmer to do the same thing. There was always a temptation if pigs were cheap to purchase, notwithstanding that they were of no class. The farmer had no sentiment; he did what he knew paid him best, and he did not see the utility of going to the extra expense of producing in the winter at a similar price to what he could obtain in the summer and autumn.

#### REGULATING SUPPLIES.

Mr. Gill (Cressy) said he took a great interest in pig-breeding and feeding. He considered a pig ought to make a pound a day. He thought the farmers should be advised to get a better class of sows. One district, he thought, would be suited for producing store pigs, while another district suitable for growing root crops could be made a fattening centre. A change was also needed in the system of selling store pigs. There were certain times in the year when pork could be shipped to Melbourne at a profit.

Mr. Telford (Table Cape) said they had food supplies at a certain time of the year, and that was the time they could produce them. The jam-maker would not say to the raspberry-grower that he must extend the season through the winter. The same applied to the dairyman and the butter factory. The bacon-curers should extend their business and take what could be offered. It was no use talking to the farmer about extending his time.

Mr. Terry said it was absolutely impossible to hold the trade with stored bacon. The consumers would not take bacon that had been held in store for any length of time.

Mr. C. White (Newnham) said if the farmers held their pigs over and then sent them to the factory at an increased weight, they received a decreased price for them.

Mr. J. Belton, M.H.A. (Wynyard), said he was present to learn. The matter of regulating the supply was the difficulty with the farmer. His experience was that the bacon-curers were always buying on a falling market. A deal of difficulty had been exaggerated, and the bacon-curers were hopeful that the farmers were going to keep up a more regular supply. Dairy-men were also waking up to the fact that they had to feed their stock in the winter. Nothing required such careful housing as pigs. They had never tackled dairying and pig-raising systematically in Tasmania.

Mr. Hall said that what they wanted to do was to open a pork trade to dispose of their pigs in the spring. They should have some assistance from the Government in getting an outlet for their surplus pork.

Mr. Wilson said that at the present time farmers had their sows farrow by the time their cows calved; they then had them ready to put on the stubble and rush them into the market.

Mr. Harrison (Kimberley) contended that the present trouble arose through having their pigs coming in all together. They wanted to arrange the time to breed the pig.

Mr. Benson said he saw no reason why pigs should be bred to any particular time of the year. They could conserve their grain so as to regulate the feeding. He was a great believer in every farmer keeping his own sows. It was not business to go into the market and buy stores to sell as fats at the same price.

Mr. J. C. Newton said the prices were not governed so much by the supply as by the supply and demand. Tasmania had unfortunately got into the rut of supplying pigs when the demand was not in keeping with the supply. Tasmanian bacon-curers had to compete with the product of the Commonwealth, and the people here were not so patriotic as to give one farthing more for their own produce than they could get bacon for from the mainland. If the farmers could not devise some means of bringing in their pigs at different periods they should consider the advisability of storing their food supplies. Until they did so the present condition of things would continue. Tasmania could not afford to import; they could produce far more than they could consume. A glut was no good to the farmer; it was no good to the bacon-curer, and he was sure it was no good to the grocer. This year was an abnormal one. During the past 15 years he did not know of any time when pigs were so low as they were in the Commonwealth to-day. Butter and meat were cheaper to-day than they had been for a long time. There had been a great deal too much said as to the treatment meted out to the farmer by the bacon-curers. He assured them that the bacon-curers would sooner see a higher price ruling for the pig. They had to compete with the fresh stuff coming in day after day. The longer they kept meat of any kind the more albumen would they get out of it—and salt would do it quickly—and they would get nothing but chips and fat. In an abnormal year all kinds of produce were reduced in price. Farmers needed to average the values of the year. They were highest from August to January. Farmers had to find a channel for disposing of the rubbish and stubbles. If the conference could bring about a regular supply, he believed the demand could be regulated. The consumption had gone up because there was a better system of feeding. The very best article would bring the best price. If they could supply the demand as it arose, they need have no fear of the results. Farmers should not be rushing after stores; they should grow their own.

Mr. R. Manley said he was interested in the curing of bacon to a small extent. The difficulty was that they get no supply of pigs from August to September. Unless the farmer bred his own pigs there was going to be a glut. In the autumn there was always a big demand for stores. If the farmer could be induced to have pigs to carry on through the winter, they would have a different experience than at present. He was certain that nobody would make much out of bacon this year.

Mr. W. Kidd (Newnham) said it cost fully one-third more to feed a pig in the winter than in the summer. They could not produce in the winter the same as they could in the summer. It was almost impossible to breed in the winter.

Mr. J. C. Newton moved, "That this conference make a request to the Agricultural Department that Mr. Terry's time be devoted as nearly as possible to this particular phase of the question during the next three months." He was satisfied that if the opinions as expressed at the conference were impressed upon breeders generally much good would result.

Mr. Telford suggested that a leaflet containing the facts should be forwarded to the farmers.

Mr. Belton seconded the motion.

Mr. Newton said he had no objection to adding to the motion that a circular letter should be forwarded to the farmers.

The motion, as amended, was agreed to.

#### EXPORT OF SURPLUS.

Mr. Telford moved, "That this conference desires the Department of Agriculture to organise and take charge of a trial shipment of pork to England." He was not at all in conflict with the bacon-curers. He believed, properly carried on, pig-producing could be made one of the most profitable industries on the coast. With an export trade, the pig could be turned into one of their principal grazing animals.

Mr. Dowling seconded the motion.

Mr. Terry said there would be no market in England, until from September till April. It would not be sane to send pork to England until September. He had never seen an export started yet that did not improve the local consumption. He was greatly afraid of a reaction setting in after the present glut. He looked upon the motion as a safety-valve. After further discussion the motion was agreed to.

Mr. Charles White (Newnham) then moved, in accordance with the desire of the East Tamar Rural Producers' Association, "That the Government be asked to include baconers in the shipment."

The suggestion was accepted by Mr. Telford as an addition to his resolution, and agreed to.

#### CLASS OF PIG REQUIRED.

Mr. Terry opened the discussion on the class of pigs required for the bacon-curer. He dealt with the matter principally from the retailer's point of view. The storekeeper wanted as much as possible of the prime joints, and the pig should have the qualities in that direction as fully developed as possible. He instanced two sides of about equal weight, but on cutting up and on being valued by the storekeeper, one side was found to be worth 9s. more than the other.

Mr. J. C. Newton said the pig that was best for the curer was not the one that would turn out a good side of bacon at 12 months old. The best pig was the one that gave a good side of bacon at as young an age as possible. Some Tasmanians seemed to have an idea that a pig should be allowed to grow to its full size before being topped off. Such a pig was of no value at all from a marketable standpoint. The best type of pig to breed for the bacon-curer was the Berkshire and York-

shire cross, with the latter as the sow. There were other crosses that produced equally as good bacon pigs, especially the Berkshire-Tamworth or Tamworth crosses. There had been a remarkable change in Tasmanian pigs, and he unhesitatingly asserted that the best pig that could be obtained for bacon purposes was the first cross of the Berkshire and Yorkshire. The sow that would give an average of eight or ten pigs at a litter, such as the Yorkshire, would be the best for the farmers, who needed to get out of the nondescript breeds, and keep something with a good skin—pigs that would put to use everything that was given to them. The Government should assist in every particular to get boars of the best blood. He had never seen such a mongrel-bred lot of pigs as he had seen in parts of Tasmania. Every Berkshire or Yorkshire pig should reach 120 lb. to 130 lb. in weight in six months, providing they were cleanly bred. He moved, "That this conference recommends to the Agricultural Department the advisability of securing pure-bred pigs from the mainland; breeds, preferably, Yorkshires and Berkshires." It would assist farmers considerably if the department would take the responsibility of securing pure and prolific strains. Some local breeders had had palmed off on them boars that were not pure.

The motion was seconded by Mr. Harrison.

Mr. Hall suggested that breeds should not be mentioned. Some breeder might desire to secure an Essex boar.

Mr. Newton said that to the bacon-curer the Essex was out of it.

The motion was agreed to.

#### GRADING BACON.

The matter of the grading of bacon, or fixing a standard, was the next phase of the industry discussed.

Mr. Terry said there was a great necessity for reducing the numbers of brands and modes of putting up the product. It was a question for the bacon-curers, to whom it should be apparent that something must be done.

Mr. Belton: Why do you not give us something easy.

Mr. Newton said the matter was absolutely out of court. It depended entirely upon the purchaser. Such a proposal as put forward by Mr. Terry would not work. Unless they could put the pigs through a machine and make them regular, there was no hope to grade. He could not see any solution to it in any way.

Mr. Belton said he could not see a way out of the trouble.

After further discussion the matter was dropped.

#### THE FEEDING OF PIGS.

The question of the feeding of pigs in relation to the production of high-class bacon was next discussed.

Mr. Kidd said it was not a question of feeding with the farmers; it was the matter of getting the price after it was fed.

Mr. Telford said the practice on the coast was to feed on skimmed milk and top off with peas. Was there anything better?

Mr. Belton said that peas were seventh on the list in feeding-value.

Several farmers, including Messrs. Telford, Dowling, White, Kidd, and Robertson, gave their experiences in feeding.

Mr. J. Wilson (Lilydale) said he found it necessary to have milk to raise pigs successfully. He got the best quality by starting to feed from infancy. He fed the sow liberally, and when the pigs were eight or nine weeks old the young ones would require a gallon and a half of milk a day each. He thickened the food as he went along. It was the only way of getting a pig fit for the bacon factory between five and six months old.

Mr. Terry said that they should see that there was no check in the growth of the pig.

Mr. Wilson: Once a pig receives a check it takes fully two months for it to recover.

Mr. Terry pointed out that it was a different thing to feed a bacon pig to what it was where stock pigs were concerned.

Mr. Kidd said that people should not run away with the idea that the pig would not pay without the use of milk in the feeding. The bulk of his breeding had been done without milk.

Mr. Newton said they had a variety of opinions as to feeding. He thought if a regular system of feeding were brought out by the expert it would have good results. There were some who had experimented, yet there were many others who were entirely in the dark. He moved, "That it be a recommendation from this conference to the Agricultural Department that steps be taken to circularise the farmers, or to publish in the 'Gazette,' information giving a proper system of feeding the pig to produce high-class bacon." Mr. Wilson had succeeded in producing a litter of pigs in five months and a few days that averaged 147 lb.

Mr. C. White seconded the motion. He said that, unfortunately, the majority of farmers did not know the cost of producing a pound of pork.

The motion was agreed to.

#### IMPROVING THE LOCAL DEMAND.

Mr. Terry said that he was sure the demand for bacon was far from what it should be. The question was how to improve the demand. The storekeeper was to blame to a large extent for the small consumption. He proposed at the next Launceston show to give special attention to bacon, and to give demonstrations in the proper methods of cutting up the different joints in a side of bacon to the best advantage. The value of good bacon as an article of diet was not generally known. There was no reason why the consumption of bacon could not be increased by 75 per cent. They wanted to show the shopkeeper and others that the different portions of a side of bacon had different values.

Mr. Newton said if eggs were cheaper all the year round the consumption of bacon would improve. The only possible solution he



thought would be for the Government to give Mr. Terry enough money to push the thing satisfactorily. The Newstead yards were a disgrace to the meanest parts of the world, owing to the filthy nature of them. The Minister for Agriculture should better recognise the claims of the farmers. They should request the Minister to extend his officers a little financial help in place of a little sympathy.

Mr. Woolnough said the way the animals were treated in most of the saleyards was little short of disgraceful.

Mr. Belton said the retail price appeared to him to be out of all proportion to the wholesale price of bacon. It seemed to him that that was a means of causing the smaller consumption. He moved, "That the department be asked to furnish Mr. Terry with sufficient funds to carry out his demonstration at the Launceston and Hobart shows." Year after year they were battling away to do something on behalf of the agricultural community, and they were face to face with the fact that they had a Director of Agriculture, but so far the Government had only given effect to one of his recommendations. Tasmania was certainly in an unenviable position, and it rested with the Government to get a move on. He was pleased with what the experts had been doing lately, but their efforts would be of little avail without the necessary money to give effect to their proposals.

Mr. Telford seconded the motion, which was carried.

#### BUYING BY LIVE WEIGHT.

Mr. C. White presented a resolution from the East Tamar Rural Producers' Association—"That this association strongly supports any movement that will lead to the buying and selling of pigs by live weight at all public sales, and to bacon factories; weight to be taken at place of purchase."

The motion was seconded by Mr. W. Kidd.

Opposition was offered to the proposal by Mr. J. C. Newton, who said that under the conditions proposed the man who fed his pigs on swill food, and distended the stomach, would be paid better for his pigs than the man who fed properly. There would be a difficulty in weighing live pigs, and the extra labour would cause additional expense. The better system would be to buy the pig straight out. For all concerned the most equitable way was to buy by dead weight. Some of the farmers thought their pigs weighed like lead. The proposal could not be made to work satisfactorily.

Mr. Belton held a similar opinion, as did Mr. Woolnough, who said it would be simply an impossibility to do as proposed.

Mr. Telford said the farmers were suspicious, and often thought they did not get a just weight. He would like to know if there was a method of being able to tell his own pigs among the carcasses.

Mr. Newton said that some of the breeders ear-marked their pigs, and could see them weighed.

Mr. Belton said at Wynyard they got over the difficulty by getting the farmers to see their own pigs weighed. The only way was to give a farmer a little more for a really good pig.

Mr. Hall said that if any man was not satisfied with the weight of a pig he should go and see it weighed.

Mr. Harrison quoted an instance of a man receiving the weights of some pigs he had forwarded to a factory, and not being satisfied, he went to the factory and found his pigs running about alive.

After further discussion, the motion was withdrawn.

#### TRUCKING CONVENIENCES.

Mr. Newton moved, "That it be a recommendation to the Minister for Railways that better accommodation be made for the public trucking of pigs where practicable throughout the State, including the erection of water-troughs and shelter-sheds."

Mr. Woolnough seconded the motion. He said it was nothing short of cruelty to see how the pigs were treated in the saleyards.

The motion was agreed to.

#### INSPECTION OF PIGS.

Mr. Newton introduced the question of inspection, and moved, "That it be a recommendation to the Minister of Agriculture that all pigs that are killed for human consumption, whether for bacon or pork, be subject to the best inspection obtainable at hand." The consuming public should be protected from any chance of tuberculosis. The system was in vogue in the city. The question then arose as to who should pay for the condemned pigs, and he suggested that a small levy per head should be made to recoup any losses in this direction, or the farmer who produced diseased pigs should stand the brunt of it. In all large yards where pigs are offered for sale the inspector should inspect them to see as far as possible if they were fit for human consumption.

The motion was seconded by Mr. R. Mauley. If something in the way of a fund could be established to meet the losses it would be a good thing. Otherwise he thought the breeder should stand the loss.

Mr. Telford opposed the motion, and said that if such a thing were compulsory in the country it would prove injurious to the industry. Opposition was also offered by Messrs. Dowling and Lockhart.

Mr. Belton, M.H.A., said the weak spot in the motion was the inspection by the unqualified man. The municipal inspectors were supposed to be experts in veterinary, dairy, sanitary, stock, and other lines, but none of them were qualified.

Mr. Wilson supported the motion, which, after further discussion, was lost.

Mr. Terry was tendered the thanks of the conference for calling the meeting. A similar compliment was paid the Mayor for the use of the room, and the press for the attention it was paying to the agricultural industry.

## FORESTRY IN ITS RELATION TO THE FARMERS AND FARMS IN TASMANIA.

By W. E. SHOBRIDGE.

**T**IMBER is one of the most valuable assets of this State. Very few countries in the world have such a variety of good timber or so large a proportion of heavily-timbered forest land. The island is divided, as are many other islands, into wet and dry districts, and the growth of timber is one of the best indications of rainfall. The great western range of mountains intercepting the moist air from the ocean condenses the vapour into rain, and this constant supply of water the whole year round, combined with temperate climate, has made that locality an ideal place for the growth of timber.

The wet district extends over all the west and north-west, and with the midland break continues over the north-east corner. The wet follows the great mountain chain that curves to the south along the Huon River, and ends abruptly at Hobart in the massive bulk of Mt. Wellington; but the rain clouds are carried across to Tasman's Peninsula, including it and Bruny in the timber zone. Through the whole of these moist districts the forest trees range from 200 to 300 feet in height, with clear, straight trunks and feathery tops, sheitering a luxuriant growth of ferns and shrubs, which act as a huge sponge to absorb the copious showers and hand them back in a steady flow to numerous streams.

Over the midlands the empty clouds shed scanty showers, and gradually melt away, leaving cloudless skies and brilliant sunshine. But the dry air has stunted the trees, and only hardy guins are scattered over the open plains, allowing the native grasses plenty of space to develop and ripen into ideal food for sheep. Those plains have become the home of our famous merino sheep. In the early days the open grassy plains of the midlands attracted the first settlers, and all available land for immediate grazing was taken up on grants, or practically given away by the Government—only too eager to attract settlers on any terms. Cheap convict labour and a lavish Imperial expenditure created a profitable market, and large estates were quickly established in the country.

When the gold fever broke out in Victoria, money was plentiful, and the demand for Tasmanian produce so great that fortunes were quickly made, whilst wages were so high that working men were able to buy farms for themselves. New settlers were also attracted, but finding the easily accessible plains were tightly held, they were forced back into the forests, and homes were won only with infinite toil, and roads made at great expense, through rough and hilly country, to connect the scattered farms with civilisation and markets.

The ruling powers of the State in Parliament and business settled down into good old ways. Secure in their position, they cared little for

the conditions of the newer settlers, and still less for the conservation and development of the resources of the country, and so the magnificent forests were ruthlessly destroyed. Near the coasts sawyers and splitters made fabulous wages, and small craft a profitable business in taking what timber they could easily get without any check or care by the Government. Tens of thousands of acres of the finest timber were ringed and burnt for clearings, that were often allowed to be overgrown again by scrub. But the giant trees of centuries' growth were gone, and even the land was but rudely cultivated, the one idea being to get rid of the timber as quickly as possible. On the fringes of the open plains thousands of acres of trees were ringed, and, as the trees died, were burnt off by extensive bush fires. Without any check from the Government, but rather with every encouragement to destroy, the timber was wantonly wasted, millions of tons of more value than the land itself being burnt and the ground cleared. But if the controllers of the State were reckless of the waste and heedless of the consequences, Nature was not idle, but exacted a stern retribution for broken laws and stupid ignorance; and we are now beginning to feel the results of this neglect and waste. The dry plains, stripped of their scanty covering of trees, and even the lower hills bared of their protecting bush, are left exposed to parching winds and scorching sun, and in the winter and spring the cold, frosty wind from the snowy mountains sweeps down on the unprotected plains and valleys, killing out all tender plants and starving the shelterless flocks and herds. Wooded hills, where once in sheltered nooks potatoes flourished and stock fattened on luxurious grasses, have now become desolate and bare and cold. The climate has changed; the seasons are not as good as they used to be, and impoverished farmers, complaining of bad times, contrast the present conditions with the good old days when first they cleared the land—when crops were good and everything flourished. They do not know that it is the necessary result of their own actions in destroying every vestige of sheltering trees. And the State has encouraged and helped them in their ignorant folly, and driven them by the land system into the bush, to waste the wealth of our forests and change the climate for the worse. Down the bare hillsides the water rushes, carrying away the fertility of the soil, and on the unprotected plains it soon dries—grass is withered, crops fail, and stock is starved. Outraged Nature has exacted the punishment for broken laws, but, unfortunately, as too often happens, the innocent suffer.

A recent issue of the "Journal of Agriculture" contains an excellent article on afforestation, which gives conclusive evidence of the mischief that has been done. But who can calculate the loss to the State of wasted timber and impoverished soil, of altered climate and desolated farms? It is time that we, as farmers, put our heads together, and devised some practical way to conserve belts of forest now untouched, and by replanting certain areas repair some of the mischief that has been done.

## GARDEN NOTES FOR SEPTEMBER.

By J. OSBORNE, JUN., Horticultural Instructor.

THE chief operation for the month will be the sowing of seeds for spring and summer crops of vegetables, flowers, and trees. In sowing these seeds certain rules should be observed, in order to make the most of the seed in hand. For small seeds, the land should be reduced to the finest tilth, and made as level as possible, to prevent the water that is applied to the soil after sowing carrying off the fine soil particles, and possibly a great deal of the seed also. Where it is impossible to get such conditions, it is best to use shallow seed-pans or boxes, fruit-cases cut in half being very suitable. These should be filled with ashes or coarse gravel to a depth of 2 inches, fine soil (sifted through a  $\frac{1}{4}$ -inch sieve) being then added, leaving an inch of the case or box free. The surface is then levelled, and the seed sown thinly and evenly. A finer sieve, partly filled with soil, is then taken, and the seed lightly covered, just enough soil being used to put the seed out of sight, and no more. Much disappointment is caused by a too-deep covering of the seed, and not a little loss. When sown in the open, it is often found that patting the soil after sowing with the back of a spade is sufficient to cover many seeds, such as mignonette, lobelia, larkspur, &c. Do not sow too thickly. Every seed should be given a chance to develop naturally and get its fair share of sunlight. Great numbers of seedlings are lost through overcrowding, which leads to a trouble known to gardeners as "fogging off," caused by an obscure fungus that attacks the plant low down between "wind and water," creating great loss. Should the seedlings be raised in a shelter-shed, or under glass, it is best, when the rough leaf appears, to place the pans or boxes (as the case may be) out in the open, giving shelter from the fierce rays of the sun till the plants become hardened. A few days will suffice. When exposed fully the plants will grow rapidly, and care must be exercised in watering. Be careful to give water only when it is needed. The young plants are much improved by what is known in the nursery as "pricking off." In this case fresh soil is prepared, the young plants being put out in the boxes at about  $1\frac{1}{2}$  inch apart, a small setting-stick being used. Many old gardeners use the forefinger of the right hand, pressing the soil gently around the plant before watering. In a few days it will be seen that the plants appreciate the change very much, and will soon show a rapid growth. Should it be found necessary to sow seeds or "prick-out" the young plants during bright, sunny weather, protection must be provided. Leafy branches placed lightly over the seeds and plants will be sufficient. Water only when the plants require it. More harm is done by overwatering than by any other operation in the garden. When young plants are pricked off or seeds sown, water thoroughly. Subsequent watering should be given only when required; that is, when the soil appears dryish. In sowing such fine seeds as begonia, gloxinia, calceo-

laria, &c., the first watering may be given by placing the seed-pan in a shallow vessel containing water that will reach the rim of the pan. The soil will soak the water up rapidly, and a good watering will result. The pan may then be removed, and allowed to drain; subsequent waterings being given from a fine-rose watering-can. As the plants develop and the number of leaves are increased, more water will be needed, there being a larger surface for evaporation. Keep a sharp lookout during dry, windy weather, as evaporation increases enormously under such conditions.

#### KITCHEN GARDEN.

Sow Yorkshire Hero and Daisy peas for main crop; also broad beans. Lettuce, cabbage, and cauliflower may be planted in well-prepared beds. A sowing of radish, turnip, carrot, parsnip, and spinach may also be made. Silver and red beet should be sown in well-manured soil. Prepare beds for a sowing of cabbage, cauliflower, and lettuce. When digging a bed, work the border deeply, and sow parsley for summer use. Keep weeds down in all cases, especially among the seeds sown in July. These should be examined, as thinning may be necessary. In warm situations, towards the end of the month, a sowing of French beans may be made. Tomato plants should be given more air daily, and towards the end of the month should be removed into the open, and sheltered at night with a covering of scrim or light boughs till all fear of frost is past.

#### FLOWER GARDEN.

During this month all seeds of plants for summer use should be sown, following directions already given. Borders of violets, lobelia (from cuttings), echeveria, &c., may be put in. Old pansy roots, after securing cuttings of the best, may be removed. Plant carnations, also pinks, that were rooted from cuttings in the late summer. Be careful of all herbaceous plants, and where necessary divide and replant in well-prepared beds. Also plant gladioli and the first bed of dahlias. Keep weeds down. The most forward of the roses will need attention for aphid. Make a sowing of sweet peas, and plant zonal geraniums that were rooted in the autumn. At the end of the month manure heavily the beds intended for annuals, and plant penstemons in good position. Young bouvardias may be planted in a warm position.

#### GREENHOUSE.

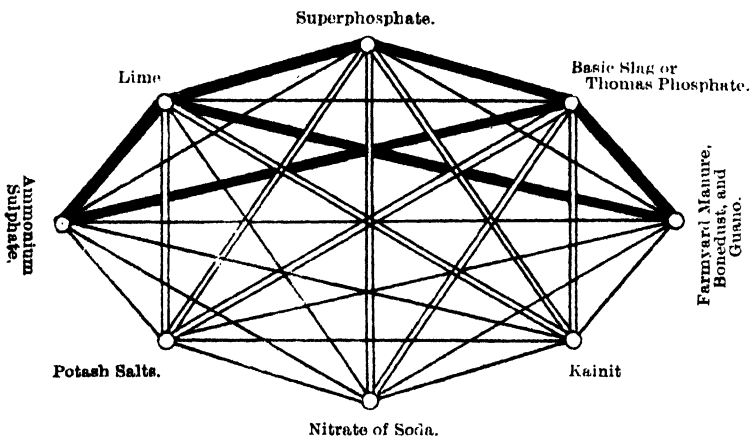
Begin the month with a general clean-up, removing all dead and dying foliage, and towards the end of the month begin to pot up all the best plants. Ventilate freely, and give water more liberally as the days become longer and warmer. Remove cineraria and primula that have ceased flowering, and place the cyclamen where they may be seen, as these are likely to be the only plants in flower. When repotting palms and foliage plants dip them in a mixture of phenyle—1 pint to 50 pints of water. Pelargonium cuttings may be treated in the same manner when pottin<sup>g</sup>.

Make a special compost for the ferns—half leaf mould, quarter sharp sand, and quarter good peat. Mix thoroughly, and use plenty of crocks for draining the pots. Sow seeds of tuberous begonia, gloxinia, streptocarpus, &c., for late summer flowering. Watch the old bulbs of begonia, gloxinia, &c., and pot up when they begin to send up shoots. When the days are very warm put water down, and open up the house. Keep a sharp lookout for aphid in the young fern fronds.

## MANURES AND HOW TO MIX THEM.

THE following illustration, kindly loaned by the Queensland Department of Agriculture, shows clearly those fertilisers which can be mixed with impunity and those which should never be blended.

In mixing manures, before applying same on the land chemical changes may occur, and more harm be done than is imagined. For instance, lime should never be mixed with dung, nitrogenous guano, or sulphate of ammonia, because the effect will be to drive off the valuable ingredient into the atmosphere. The practice of mixing bone and super., as



is done by manure vendors, is a questionable one, and may result in some of the water-soluble phosphoric acid being changed to the "reverted" or citrate soluble condition. Some authorities claim that nitrate of soda must not be mixed long with superphosphate, because the free sulphuric acid in the latter has a very great affinity for soda, and will set free the nitric acid, which means loss of nitrogen. Those manures joined by the thick lines in the accompanying illustration must never be mixed before using; those by the double line, immediately before spreading; and those by the single line can be mixed together at any reasonable time prior to sowing.

## A PEDAL FORM OF CONTAGIOUS ECZEMA IN CATTLE.

By R. WILLMOT, F.R.C.S., Government Veterinary Surgeon.

**S**IR,—I have the honour to report the occurrence of an outbreak of disease amongst cattle in this State which has not been previously notified.

On my recent visit to the North-East Coast I found several herds of cattle suffering from a contagious form of eczema of the feet. On examining some of the animals I found several suffering from the following symptoms:—Redness and heat of the skin round the coronet, and exceedingly painful swellings in these parts. In the early stages of the disease small vesicles appeared on the skin, at the heels, and between the digits (toes). These later on discharge, and give a greasy, swollen, and inflamed appearance to the parts. The animals were lame and stiff, one or more of the feet becoming affected, especially the hind ones. In some cases there was evidence to show that severe inflammation of a septic and erysipelatous nature had occurred, causing much thickening of the tissues round the joints and arthritis; in others, that partial shedding of the hoof, and septic laminitis of a severe kind, had taken place; and I gather from what the owners of the cattle told me that deaths in not a few cases had occurred from extension of the affection to the bones, resulting in gangrene, pyæmia, and death. The disease appears to only attack the cows and bulls, the latter being useless when the hind feet are affected.

This disease, which has a striking resemblance to the pedal form of eczema contagiosa, appears to be of entirely spontaneous origin. A microscopic examination of scrapings from between the digits revealed strepto and staphylococci and other septic micro-organisms, but I am unable to differentiate any specific bacteria as pathognomonic of the disease.

Hitherto the epizootic has only occurred in the very driest summer time. It is probable that in the absence of other parasites the septic micro-organisms that must cause it are more virulent in the partially evaporated swampy places, to which the cattle have access, than in ordinary seasons. The mud from these places dries on the animals' feet, and sets up a septic inflammation, which once started in a herd acquires additional virulence, and spreads from one animal to another by their running over the same ground and being stalled in the same byres for milking, the discharges from the feet from one affected cow inoculating the next animal that stands in the same place.

We have no experimental station to enable us to verify the contagiousness of this disease, but the history of the epizootic is sufficient to establish the fact.

In the event of a case occurring on any farm, the first thing to do is to put up a separate milking-place for the sick that will be accessible



without the animal passing through the common yard with the others. The animal must also be put in a paddock away from the others, and the closer it is to the milking-bail the better. It should then have all the dirt removed from between the digits, and the affected feet washed with some disinfectant, such as chloride of lime (a pound to 12 pints of water). After this it should be dusted over with a little very finely powdered sulphate of copper (bluestone), then smeared over with Stockholm tar, and a thin bag tied over it to keep out the dirt (not too tightly, to stop the circulation). This should be done every day till recovery takes place. Other disinfectants, such as lysol, creolin, phenyle, carbolic acid (well diluted), will answer equally well. Another excellent remedy in bad cases would be the application, after cleaning the parts, of yellow sulphuret of arsenic (orpiment), just powdered on very lightly with a feather or camel-hair brush, and the tar applied afterwards. As this is a poisonous drug care must be taken in its use, two or three applications being first made, and afterwards returning to the other treatment.

The floors of the sheds should be washed with a solution of chloride of lime or phenyle, or dusted and disinfected with "live" lime; but the secret of success in stamping out the disease will be quarantine, disinfection, and cleanly antiseptic dressings.

A hint with regard to the milk of affected animals: As the use of the milk is dangerous in other forms of contagious eczema, it is advisable, if milk is to be used, either for man or animals, that in every case it should be previously sterilised by boiling for 10 or 15 minutes.—I am, &c.,

R. WILLMOT, F.R.C.S., Government Veterinary Surgeon.

To the Honourable the Minister of Agriculture.

#### GLOSSARY.

**Antiseptic:** Preventing or destroying putrefaction.

**Arthritis:** Inflammation of a joint.

**Coronet:** The fleshy, hairy ring round the top of the hoof.

**Differentiate:** To specialise or separate different organs, tissues, or functions.

**Eczema:** Inflammation of the skin with exudation.

**Epizootic:** Epidemic amongst animals.

**Erysipelatous:** Pertaining to inflammation of the skin and cellular tissue.

**Gangrene:** Mortification or death of the tissues.

**Lamina:** The connecting part between the bone and the tissues.

**Laminitis:** Inflammation of the lamina of the foot.

**"Live" Lime:** Lime that has not been slaked with water.

**Micro-organism:** An organism so small as to be seen only with a microscope.

**Pathognomonic:** Characteristic peculiar to.

**Pyæmia:** Formation of pus or matter in the circulation.

**Septic:** Causing putrefaction.

**Staphylococci:** Round-shaped micro-organisms irregularly formed.

**Streptococci:** Round micro-organisms arranged in chains.

**Vesicles:** Small blisters.

**Virulent:** Of poisonous nature.

## FORESTRY NOTES.

By L. RODWAY, Government Botanist.

### 11.—EUCALYPTS.

(Continued.)

**U**RN-GUM is a common species of most of our mountains, and is found anywhere from 2000 to 3000 feet. Where it is found at a lower altitude it departs greatly from the typical form. The wood is pale; very similar otherwise to that of Brown-gum, but rather more brittle. It is an excellent firewood.

These are the only native Eucalypts that are likely to repay efforts at afforestation, and of these three of them are only likely to succeed at an altitude above 1000 feet. Also the Peppermints, though producing a wood of greater durability, seldom or never attain a large size, leaving only Blue-gum and Stringy-bark as suitable trees for a low altitude. To these may be added the tree locally called Ironbark, but in Australia, Mountain Ash. It is of no relation to the Ironbarks of Australia, and is not included because in the larger centres of Victoria and New South Wales, where it is common, its timber is not held in high repute.

On the mainland of Australia there is not only a very large variety of Eucalypts, but some that produce timber of exceptional value. Though, as has already been pointed out, these trees are often only able to succeed within very definite winter temperature, yet some of them are fairly accommodating. Some West Australian species do well with us, also others whose native home is much warmer than Tasmania. It seems very extraordinary that though we have been planting trees for more than a century no sufficient effort has been made to acclimatise the more useful Australian Gums. This is all the more strange, because the Government has been supporting gardens for the last 25 years, ostensibly for botanic purposes. Pretty flowers are grown in profusion, but Australian plants, especially those of economic importance, such as timber trees, have been sadly neglected.

As a first consideration the following Australian trees should be experimented with:—

- White Ironbark = *Euc. paniculata*, Sm.
- Blackbutt = *Euc. pilularis*, Sm.
- Tallowwood = *Euc. microcorys*, F. v. M.
- Murray Red-gum = *Euc. rostrata*, Schl.
- Forest Red-gum = *Euc. tereticornis*, Sm.
- Sugar-gum = *Euc. corynocalyx*.

White Ironbark is one of the strongest and most durable of Australian timbers. For these qualities we have no tree in Tasmania that will compare with it. It will stand in the ground for apparently an indefinite

period without decaying. It is of exceptional value for railway-sleepers. "I have seen specimens of sleepers which have borne the heaviest traffic of the main line near Sydney for 20 years, and which are as sound as the day they were laid." (Maiden.) It has been extensively planted in South Africa, and as it thrives in Gippsland we can only say it will not do here when we shall have given it a fair trial.

Blackbutt affords an excellent pale timber suitable for house work, planking, wood-blocks, and general carpentry. It is as durable as our Peppermint, is a more rapid grower, and attains a larger size. It is best suited for coastal districts.

Tallow-wood does not grow native south of Newcastle, and therefore will probably fail in our climate, but this is not proved. We cannot say a tree will not become acclimatised till we have tried. *Euc. citriodora* is native no further south, yet it does well about Melbourne, and what trees have been planted here seldom show much resentment to our winter conditions. Tallow-wood produces a very good timber for flooring and such like purposes, and is practically indestructible in the ground. It has a greasy surface, whence its name; but it will not burn at all readily, for which reason it is very suitable for indoor work. It shrinks and expands less than most Australian timbers, and is therefore very suitable for wood-blocks.

Murray Red-gum is known to us better as the Red-gum of Victoria. The timber does not work up with sufficient ease to recommend itself for anything but rough purposes, but it is strong and excessively durable. It grows well with us, but should only be planted in moist lowland situations. Its purpose for us is to provide indestructible rough timber for such work as bridges, sleepers, and fences.

Forest Red-gum is very close to the last, and produces a similar timber. As it does not require the moist conditions of soil of the other it may prove a better tree for general conditions.

Sugar-gum is so named because the leaves have a sweetish taste. It is readily eaten by stock, and is therefore valuable for fodder in districts liable to be denuded of grass. It is quite hardy in our climate, and will grow to a large size, producing an excellent timber. It is a very good tree for wind-breaks, and by suitable pruning may be formed into a dense hedge of whatever height may be desired. It is a rapid grower, succeeds on shallow soil, and, being a native to Australian conditions, is less likely to be affected by insect pests than introduced conifers are. It is very possible that for general purposes of protection about paddocks and farms it will be more useful than any tree from the northern hemisphere.

This list of Eucalypts must be looked upon in the light of a general suggestion. We have too little knowledge of the capabilities of our Australian trees to definitely fix upon half a dozen as being best suited for introduction, yet the ones suggested are certainly desirable.

(To be continued.)

## THIRD TASMANIAN EGG-LAYING COMPETITION.

THE following is the progress report for the second month of the third egg-laying competition conducted at the Springvale Tea Gardens, New Town:—

	Month of July.	Total.
1. White Leghorns, F. Hart, New Town ... ..	116	190
2. White Leghorns, A. G. Genders, Launceston ... ..	103	157
3. Silver Wyandottes, H. R. Taylor, Launceston ... ..	75	142
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	107	136
5. White Wyandottes, A. G. Genders, Launceston ... ..	98	181
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	109	170
7. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	114	135
8. Brown Leghorns, Williams Bros., Fingal ... ..	68	106
9. White Leghorns, Briggs and Son, Longford ... ..	75	148
10. Silver Wyandottes, W. T. Stephens, Beulah ... ..	122	193
11. White Wyandottes, Rust Bros., Claremont ... ..	107	150
12. White Leghorns, R. J. Sheriff, Hagley ... ..	105	153
13. Black Orpingtons, G. Gilham, Launceston ... ..	57	66
14. White Leghorns, J. J. Harvey, Riana ... ..	25	36
15. White Leghorns, Mrs. B. Whittle, Launceston ... ..	86	121
16. R.C. Brown Leghorns, Briggs and Son, Longford ... ..	71	87
17. White Leghorns, A. Dickenson, South Bridgewater ... ..	100	145
18. White Leghorns, Reid and Stride, Liverpool-st., Hobart	115	170
19. White Leghorns, S. Ellis, Botany, N.S.W. ... ..	81	109
20. R.C. Black Orpingtons, W. T. Stephens, Beulah ... ..	—	4
21. Buff Orpingtons, A. G. Genders, Launceston ... ..	104	177
22. White Leghorns, O. H. Olson, Karoola ... ..	98	169
23. Black China Langshans, S. Ellis, Botany, N.S.W. ... ..	37	46
24. White Orpingtons, E. E. Roberts, Franklin ... ..	85	88
25. White Leghorns, Mr. B. Whittle, Launceston ... ..	124	171
26. White Leghorns, L. J. Dowling, Devonport ... ..	71	87
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ... ..	84	137
28. White Leghorns, J. Crisp, Launceston ... ..	106	163
29. White Leghorns, F. A. W. Gisborne, Risdon-road ... ..	95	160
30. S.C. Brown Leghorns, W. H. Hale, Strahan ... ..	102	160
31. White Leghorns, Mrs. Luke Williams, Moonah ... ..	116	139
32. Black Orpingtons, A. Battin, Launceston ... ..	134	183
33. White Leghorns, A. Terry, Sea View Hotel, Burnie ... ..	136	214

## WEATHER AND CROPS.

**AVOCA.**—The average rainfall for the quarter ending in June was 6 inches (37 points). Early crops look well; but very little seed has been sown owing to the unfavourable weather. Except on the high land farmers have not yet been able to commence ploughing. Feed is splendid, and stock consequently look well.

**BEULAH.**—The early part of the winter has been very favourable as regards ploughing. Some Algerian oats sown in the autumn look well, and the later-sown oats and peas are beginning to show above ground. A few farmers are busy putting in potatoes, but only a few acres are being planted, as this crop is now considered uncertain. There are still a lot of oats and peas to be sown in this district. The large amount of rain that fell during July has retarded nearly all farming operations.

**CARNARVON.**—As regards weather for the month of July, and also of June, it has been ideal—nice warm showers with very few frosts—consequently at present there is a good growth in grass. As to crops, very little in as yet; what are in and up are looking well. Rainfall for July, 205 points; number of wet days, 19.

**CRESSY.**—Though there was not much heavy rain, July was nevertheless a wet month, and farming operations have been retarded in consequence. Rain fell as follows:—July 2nd, 1 point; 5th, 2; 6th, 3; 7th, 7; 8th, 1; 10th, 9; 11th, 2; 12th, 1; 16th, 40; 17th, 20; 18th, 50; 19th, 27; 20th, 8; 21st, 70; 28th, 4; 29th, 30; 30th, 22. Total 297. The average for the seven months was 17·73, as against 15·15 for the corresponding period of 1910. The early-sown crops—i.e., those sown up to the end of May—are making good growth, and while it is yet too early to hazard a prediction, still the indications of a good crop are most favourable. Feed has been more abundant during the present winter than for years past. Lambing has commenced, and already many of the young woolly tribe may be seen gamboling about the fields.

**FORTH.**—During the early part of August the weather was very wet, rain falling almost continuously. In the absence of a local meteorological record many believe it to be a record for the district. Although wet the weather is very mild and spring-like. The early-sown crops are getting along nicely, particularly the Algerian oats, which many farmers are now feeding off with sheep or cows. Grain-sowing is now almost at an end. A fair quantity of wheat has been sown; it is just above ground, and presents a very strong, healthy appearance. Potato-planting is now the order of the day, and the area taken up will be about the same as last year. Grass is springing up nicely, and all kinds of stock are in good order. Lambing is drawing to a close; the season's yield should be a record. The low price of stock is a subject for complaint among farmers, many of whom bought sheep in the fall, and after wintering them had to sell at a very small advance on what they cost. Beef is low at present—up to 25s. per 100—and with an early spring there is little hope of a rise. The Director's proposal to relax the quarantine regulations is viewed with alarm by many farmers in this district. Apart from the dreaded pleuro, it is thought that should a drought strike the mainland this State will be a dumping-ground for all the heifers that can be bought "for a song" in the other States—under the pretence that they are dairy cattle. Farmers consider that Parliament should give this matter every consideration before taking what is thought to be an extreme step.

**FRANKFORD.**—The winter has been a wet one, consequently farm work is somewhat in arrears. Cropping is not extensively carried on in Frankford; beyond what is required for home consumption very little is grown, excepting

potatoes. The district is well adapted for the production of a fine quality potato, as well as fruit. The ravages of the blight proved nothing like so extensive as in many other centres, only a small percentage being affected in the majority of the crops. Some of the earlier varieties were quite clean, and realised from £7 10s. to £9 per ton in Launceston—an eminently satisfactory figure. Cropping is not extensively carried on, and although each year an increased area of ground is broken, progress is not so rapid as it might be by any means. The feeding value of the earliest scrubbed land is comparatively poor, and the ground needs breaking up; the advent of a dry summer would facilitate clearing to a great extent. Fruit crops were quite up to average. More apples were shipped to England, and as returns were satisfactory, no doubt a greater quantity will go forward next season. A recent visitor, representing a southern firm, spoke highly of the quality of the sturmers. There are some good stocks standing in some of the orchards.

**FRANKFORD.**—During the last few months the weather has been “seasonable.” The amount of rain has not been excessive, although there have been more days wet than usual. There have been a few sharp frosts, but as yet not so bad as is often the case. Altogether the season so far is favourable to both stock and crops. There are not many crops in at present. A few oats are up and looking well, and with favourable weather should come on very shortly. A good many farmers are getting ready for potato-planting, which is likely to be commenced earlier than usual, in order to get a good growth before the blight appears. There is also a fair amount of new ground being broken up for crops, although not nearly as much as there would be if our outlet was better, and the expense of getting to market not so great. Stock are looking well for the time of year. A few lambs are to be seen, but the bulk will not come (and are not wanted) till August or September. Sheep and cattle are looking better than usual on account of the good feed in the autumn.

**GLEN HUON.**—The weather for the past month has been bright and dry, with occasional frosts. No crops except fruit are grown in this district. Orchardists have made good use of the fine weather for winter spraying for mussel scale. Most of the orchards are being ploughed and manured. A greater quantity of lime is being used this year than formerly.

**GLENORCHY.**—The weather has been fine and mild, and the ground is in good tilth. Farm and orchard work are progressing satisfactorily. There is every indication of an early spring, and fruit is abnormally advanced in budding. Crops as a rule look well.

**HARFORD.**—So far the weather conditions have been somewhat against the farmer. On most of the farms there are many paddocks which have been ploughed, but which are not yet dry enough to drill. Unless the rain moderates many of the marsh paddocks will not be fit for sowing for another three or four weeks. The earlier-sown crops of Algerian oats are looking remarkably well, and most of the farmers are feeding them off. Owing to their inability to get on the land that is ploughed, many farmers are busy putting in early potatoes, and the majority intend to plant the same acreage as in former years. So far the Irish blight has not frightened them, but at the same time the crops are all going in much earlier this season; the end of the month will see nearly all the potatoes planted. Feed has not been very scarce, and stock are looking fairly well, most farmers possessing fair stacks of hay. Lambing is in full swing, some of the lambs being over a month old. They have stood the rough weather very well.

**IRISH TOWN.**—Since the beginning of July the weather has been very mild and dry for the time of year, and farmers have made good progress with their ploughing and planting. Since the advent of Irish blight considerably less attention than formerly has been paid to potatoes, and more to dairying and

hay-growing, but farmers find themselves seriously hampered by the impossibility of obtaining a sufficient number of cows or heifers of milking strain. Farmers are, on a small scale, experimenting with such crops as wheat, mangolds, rape, and other crops, all of which thrive well and give good returns. Potatoes have fallen from first place to second, oats now holding pride of place. A large quantity of turnips are grown for fattening purposes, and on the new land out back there are a good few sheep, the state of the roads there being such that the cream-cart cannot travel for more than two months of the year.

**KETTERING.**—The weather for the last few weeks has been bright days with some frost. The ground is drying up now, so the plough is kept at work in many places. The orchard crops are looking promising; pruning is now nearly finished, and many new pieces of land planted. The grain crops that have been standing still for some time are now starting to grow again, and what with the wattle coming into blossom and the willow budding spring seems to be approaching early.

**KINDRED.**—The weather during the last three weeks has been wet, and retarded farm work very much. Although wet it has been very mild, and early crops are beginning to make a little growth now. Some of the early Algerian oats are showing up nicely, but there are a lot of oats to be sown yet. Several farmers have commenced to plant potatoes, chiefly of the white varieties.

**MORIARTY.**—Crops look very well, and are now making good growth. A fairly large area is in with Algerian and white oats. More peas are being sown than usual, mostly the blue variety. Potato-planting is in full swing, and there will be a big area of early kinds, but very few late ones. Rape crops were very good, but owing to low price of fat sheep growers have not made a fortune. Some good crops of mangolds were grown, one farmer having 26 head of four and five year old cattle on 2 acres for seven weeks. Weather: July was cold, with very heavy frosts; less rain than usual; very little growth. August so far has been quite warm, with light rain every other day, and sowing operations on low land have been out of the question.

**NEWNHAM.**—The weather has been so continuously and excessively wet that cultivation has been seriously hampered and growth at a standstill. The unusual rains throughout autumn and early winter kept up a supply of pasturage much later than usual, so that dairying derived benefit, but fallowing and cropping are in a very backward state. Most orchardists have got their pruning done for the season, and look forward with interest to a visit from Mr. Osborne for advice, &c.

**NOOK.**—The weather here has been very boisterous and cold. There is no grain in yet, only Algerians for hay, and the temperature has been so low there is no growth in anything. Some farmers are getting on with the potato crop; they have started planting.

**PRESTON.**—With a mild winter up till end of July, rain is coming in abundance. Crops that were sown early are coming away well. Grass has been plentiful all the winter, consequently stock look well. Potato-digging is about finished, and on most farms Irish blight has not done as much harm as was at first expected. The yield in most places was from 2 to 3 tons per acre. As usual, a fair amount will again be planted this year, and as in most other places they will be planted much earlier than other years. Ploughing is at a standstill through wet weather, and farmers are wanting fine warm weather to get on with what they have ready.

**RIANA.**—The weather during the last two months has retarded farming operations, and farmers generally are not so well forward with their work as they would wish. Most farmers seem to be increasing their acreage under

oats. Potato-cultivation will be gone about much more cautiously than heretofore. We shall soon have a butter factory in full swing in our midst. The erection of one is being pushed on with here, and it is anticipated that it will be ready for the coming season. The farmers and dairymen here seem to be very much against any relaxation of the quarantine restrictions now in force, as they consider we have quite enough pests among vegetables without a still more terrible one in their herds. The "Agricultural Gazette" is much appreciated and looked forward to.

RIDGLEY.—The weather until the end of July has been ideal for the time of year; although the nights were frosty the days have been bright and fine, allowing farmers to push along well with their work. This month, however, many wet days have been experienced, and indications point to a wet August. So far all stock have wintered well, grass having held out very well; whilst in the back districts the dreaded take-all has not been troublesome. Most farmers are busy planting potatoes, of which there will be a large acreage this season. Early varieties have found favour with potatogrowers—one farmer has been engaged in planting operations for the last six weeks. It is generally anticipated that the potato crop of this district will be early. Oat crops are not forward enough yet for a report, but a good area is being sown.

ST. HELENS.—July was an exceptionally cold month, the temperature reaching 61 degrees on the 17th of the month. Frost occurred on seven occasions, but the temperature (minimum) was on no occasion more than 4 points below the freezing point. The wind was almost exclusively from the west. The sky was mostly clear, and the rainfall very deficient. Only 140 points were recorded for the month, and nearly the whole of this fell between the 16th to the 22nd July inclusive. The rivers are low for the time of year, and a continuance of the dry weather which prevailed would soon bring them far under average winter level. As to the crops, present prospects are bright, the district having enjoyed a mild and dry winter. Present indications point to an early spring.

ST. MARYS.—In reference to the crops and weather for putting them in in this district, the wheat, in black soil, has been put in, though earlier ploughing was much impeded by the soft ground resulting from the unusually heavy floods in March. Oats have not as yet been sown extensively, as the "loamy" soil has been very soft and ploughing not practicable. Some farmers have sown; but much remains as yet to be got in. The weather has been dry during June and July (particularly the latter), but the subsoil is full of water yet. The absence of rain during those months has alone rendered operations possible. Cultivation of wheat has increased here in the valley—no increase in the hill settlement—during the past few years.

ST. PATRICK'S RIVER AND MYRTLE BANK.—The rainfall for some time past has been much above the average, and the low-lying lands are not yet sown, but the uplands are mostly all in, and probably all sowing will be finished by end of August.

TABLE CAPE.—During July a large quantity of rain fell, and the weather is still unsettled. Crops are growing well. A large area of early potatoes is being planted, one farmer having put in 50 acres of Bismarcks.

WATTLE GROVE.—Owing to the unusually mild weather last month, the crops and fruit trees are very forward, and show signs of a good yield. July was very much drier than usual.



## BOARDS OF AGRICULTURE.

The following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	H. Bennell	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Cressy	James Anderson	Cressy
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
East Tamar	W. Carnie	Newnham
Elliott	L. H. Shepherd	Elliott
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Geeveston	F. Hyndes	Geeveston
Glengarry	W. Wheldon	Glengarry
Glen Huon	P. H. Young	Glen Huon
Glenorchy	Hon. W. Clifford	Glenorchy
Harford	Geo. Sykes	Harford
Irish Town	E. L. Smith	Irish Town
Kimberley	H. Britton	Kimberley
Kettering	F. Hawker	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
King Island	A. Bertram	King Island
Leslie	R. C. Reid	Fern Tree
Lilydale	S. Wellington	Lilydale
Lymington South	T. Burnaby	Lymington
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marrawah	E. Bonhôte	Marrawah
Montagu	R. Ennis	Montagu
Meander	H. Evans	Meander
Mt. Seymour	W. Wilson	Mt. Seymour
Mowbray	G. H. Boatwright	Smithton
Mooreville-road	W. White	C/o W. Spinks, Mooreville-road
New Ground	J. L. Thomas	Moriarty
New Norfolk	B. R. Reynolds	New Norfolk
North Motton	O. Waters	North Motton
Nook	J. H. Lyons	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgley	W. Morris	Ridgley
Scottsdale	F. F. Tucker	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
Sheffield	O. Ridley	Sheffield
South Preston	F. Tongs	South Preston
St. Helens	C. R. Bowling	St. Helens
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carina	Myrtle Bank
Sprent	A. Lee	Sprent
Staverton	T. Wootton	Staverton

## BOARDS OF AGRICULTURE continued

BOARD.	HON. SECRETARY.	ADDRESS.
Stoodley	J. Leo	Stoodley
Stowport	J. G. Pearson	Round Hill, Burnie
South Springfield	J. Molphy	South Springfield
Table Cape	H. J. Smith	Wynyard
Tyenna	F. M. Smith	Tyenna
Ulverstone	H. A. Nichols	Ulverstone
Upper Mountain River	A. Griffiths	Grove
Wattle Grove	K. Lord	Wattle Grove (Lower)
West Tamar	H. Robinson	Frankford
Wilmot	D. E. Forbes	Wilmot
Yolla	D. T. Jones	Yolla

## Avoca, July 5.

PRESENT.—Messrs. J. Conway (Chairman), H. J. Parker, Sen., J. McCarthy, H. E. Malkin, J. Conway, and H. Bennell (Hon. Secretary).

APPOINTMENTS.—Secretary, Mr. H. Bennell; Assistant-Secretary, Mr. J. McCarthy.

## Barrington, August 5.

PRESENT.—Messrs. A. Rools (in the chair), A. Morey, C. Packett, T. Williams, J. A. Moore, F. E. French, A. Newman, and A. E. Moore (Hon. Secretary).

BLACKBERRY PEST.—In reference to the offer of the Department of Agriculture to carry out experiments for the eradication of blackberries, the Secretary's offer to comply with request of Director by preparing plot to be treated was accepted.

TRET OFF POTATOES.—A circular forwarded by the Department with Mr. T. Addison's resolution protesting against tret being taken off potatoes was endorsed.

LAND SETTLEMENT AND IMMIGRATION.—This matter was discussed. Proposed by Mr. J. A. Moore, and seconded by Mr. C. Packett, "That Messrs. T. Williams, J. A. Moore, J. McNally, A. Rools, and the Hon. Secretary form a committee of inquiry to report on properties for sale and other particulars regarding same, to be forwarded to officer in charge."—Carried.

SHIPMENT OF PORK.—Proposed by Mr. A. E. Moore, and seconded by Mr. A. Morey, "That the Agricultural Department's prompt action in dealing with this important industry meets with the approval of this Board."—Carried unanimously.

## East Tamar, August 7.

PRESENT.—Mr. D. T. Medwin (President), Secretary, Treasurer, and 30 other members.

NEW MEMBERS.—Five new members were enrolled.

CONFERENCE.—Mr. White reported that the piggrowers' conference had accepted the resolution which he submitted through this association, and that already the Department of Agriculture was moving in the matter of testing oversea markets with a shipment of frozen pork. The proposal to legislate with a view to buying animals at public sales by live weight was not agreed to.

ADDRESSES BY EXPERTS.—Regarding a departmental communication, that Mr. Benson would address fruitgrowers in Launceston on July 19, the Secretary reported having asked certain members to represent this association there. Mr. Scifleet explained that proposals had been made at that meeting for an extended visit of the Horticultural Expert to the whole of Tamar Valley, and an itinerary was under consideration. Also, the Analytical Chemist was about to make a thorough and scientific classification of Tamar

Valley soils, and asked the assistance of those who had any knowledge of localities where varying qualities of soil were obtainable. Members cordially promised assistance.

**POTATO TRET.**—A circular was read from the Department covering a motion passed by New Ground Association, which asked the assistance of kindred Boards in protesting against the custom of merchants making such excessive deductions from weights of potato deliveries. Mr. Scifleet ably advocated that this Branch Board should comply with the request, and moved, "That the Secretary be instructed to reply stating that this association is ready to co-operate in any movement brought forward to secure the aims of the New Ground Association's request." Seconded by Mr. Powell, and carried unanimously.

**CORN SACKS.**—A discussion arose as to the irregularity of size in corn sacks obtained from merchants, and Mr. G. Archer moved, "That other associations be asked to take into consideration a movement to urge Federal Parliament to legislate so that a corn sack when bought shall be of a standard size, to hold 3 bushels (or 200 lb.) which at present many do not." Seconded by Mr. Owen, and carried.

**IMMIGRATION.**—A circular from the Immigration Branch of the Agricultural Department was read, asking for certain details about the district. The Secretary stated that, as the Association covers such an extensive area, he had sent copies to members residing in different localities, asking written replies to each query. Some of these replies were to hand, and would be considered later on.

**FRUIT PESTS AND DISEASES.**—A pictorial and explanatory chart of fruit pests and diseases was received from Director of Agriculture, and acknowledged by acclamation.

**DEEP-WATER PORT.**—The adjourned discussion on a deep-water port for Tamar River was brought on by Mr. Allison, who said that the position of the port in the river should be the least consideration, the main thing being to have it safe and commodious with easy navigation. Mr. Genders said that the need for a deep-water port for Northern Tasmania was undoubted. European shipping companies' experts had affirmed that only three deep-water ports exist in Australia, viz., at Port Dalrymple (Tamar), Hobart, and Fremantle. He hoped this powerful Association would speak in no uncertain voice on the question, nor allow small or local questions to overshadow or endanger the importance of securing the construction of a port in the river. The greatest danger arises from amateurs desiring to dictate as to site of construction. He asked members to wait for the report of Mr. Hunter, who had been but now appointed as an expert on river matters, and when his report was given, to abide loyally by it. Many members spoke on the question, all endorsing the need for such a port and its connection by rail with Launceston, and the motion being put, was carried unanimously. Mr. Clare moved, "That a deputation be formed to wait on Ministers and take them on a tour through the districts interested, and that the municipalities and public bodies affected be cordially invited to assist." Carried unanimously. Mr. Walden moved, "That this meeting requests our representatives in the House of Assembly to bring before Parliament a motion asking for a committee of enquiry to be appointed to investigate the urgent necessity for a deep-water port in River Tamar, as recommended by the East Tamar Rural Producers' and Fruitgrowers' Association, so that loss to producers may cease and industrial expansion take place by having direct and cheaper export facilities to all parts of the world; and also to consider the connection of such port by rail with Launceston." Seconded by Mr. Box, and carried unanimously. Mr. Owen moved, and Mr. Allison seconded, "That this Association convene a special public meeting to be held in Launceston on an

early date with the object of discussing the necessity for a deep-water port in the Tamar, and its connection with Launceston by railway, and that all members of Parliament for Bass and the members of Launceston Marine Board be asked to attend." An amendment to substitute "Newnham" for "Launceston" and delete the word "public" was lost, and the original motion carried by a large majority.

### Forth, July 14.

**PRESENT.**—Messrs. M. Barker (Chairman), T. C. Wellard, G. Wellard, C. H. Wellard, W. Kennedy, W. Cash, A. Cullen, and H. A. Vertigan (Hon. Secretary).

**TRET ON POTATOES.**—A letter was read from the Director of Agriculture enclosing a resolution passed by the New Ground Board protesting against the deduction of tret in connection with potatoes. After discussion it was decided to support the action of the New Ground Board in this matter.

**IMMIGRATION.**—A letter was read from Mr. L. A. Evans asking for particulars regarding the system of agriculture in the district for the information of intending immigrants. Messrs. M. Barker, T. C. Wellard, H. A. Vertigan, and W. Kennedy were appointed a committee to supply the desired information.

**POTATO INSPECTION.**—The following resolution, moved by Mr. T. C. Wellard, was carried:—"That in the opinion of this Board the inspection fee on potatoes is unnecessarily high, and that the time has arrived when the growers should be relieved in that direction."

**DISPOSAL OF PRODUCE.**—Mr. Cullen intimated his intention of moving the following resolution at the next meeting:—"That in the interests of growers this Board should make some better arrangements for the disposal of produce."

**POTATO BLIGHT.**—Mr. Kennedy stated that potatoes which he had grown on fallow land suffered less from the ravages of blight than others planted in a similar way (and at the same time) on grass land.

**BULL.**—Mr. C. H. Wellard drew attention to the urgent need for a first-class bull in the district. The matter was discussed, but nothing definite was decided upon.

**BABCOCK TESTER.**—The Babcock tester was placed in charge of the Chairman for the coming season.

### Glen Huon, July 22 and August 5.

#### July 22.

There was a good attendance of members, and the President (Mr. E. R. Shield) occupied the chair.

**IMMIGRATION.**—The Secretary read correspondence from the Department of Agriculture, asking the Board to supply information that would be of service to intending immigrants. A sub-committee, consisting of Messrs. E. A. Wright, A. Wise, and W. Dean was appointed to collect the information required and report at the next meeting. The meeting expressed its approval of collecting information of this kind through the local Boards.

**DELEGATES' REPORT.**—After the correspondence had been dealt with the Chairman called upon Mr. E. A. Wright and Mr. P. H. Young, the delegates to the agriculture conference recently held at Launceston, to report upon the conference. Mr. E. A. Wright gave a comprehensive account of the work of the conference, and Mr. P. H. Young endorsed his remarks. The meeting accorded both delegates a hearty vote of thanks for their interesting report.

**THE FRUIT INDUSTRY.**—The subject of fruit inspection fees came up for discussion. While satisfaction was expressed at the abolition of the local inspec-

tion charges, it was thought that New South Wales should have reduced its charge to halfpenny, as was agreed upon. The fruitgrowers present took the opportunity to thank Mr. E. R. Shield for the good work he had done as a delegate to the fruitgrowers' conference held in Hobart last year in bringing forward the matter of inspection fees.

#### August 5.

**PRESENT.**—Messrs. E. R. Shield (President), J. E. Wright, E. A. Wright, W. Voss, G. Bester, P. Davern, A. Evans, S. Woolley, P. Woolley, W. Watson, H. Brown, W. Dean, and P. H. Young (Hon. Secretary).

**ELECTION OF OFFICERS.**—President, E. R. Shield; Secretary and Treasurer, P. H. Young.

**MEETING-ROOM.**—The Secretary reported that the hall committee had agreed to allow the Board the use of the hall for the nominal charge of 10s. per annum. The Chairman, on behalf of the Board, thanked the hall committee for their generous offer. He felt sure that the charge (10s.) would scarcely pay for the kerosene burnt.

**SPRAYING.**—The subject of compulsory spraying was introduced by the President. He dealt with the subject under several heads for and against, and asked the meeting to express their views on the subject. Mr. E. A. Wright went into the matter at some length, and although he was rather in favour of compulsory spraying, he considered that there were many difficulties in the way of effective compulsory spraying. He thought that it would be better for the central government to take the matter up rather than for the local council to deal with it. The general feeling of the meeting was against the council dealing with the matter, or at any rate, until councillors had ascertained by the public meeting the feeling of the fruitgrowers on the subject. A motion to this effect was carried.

#### Glenorchy, July 19.

**PRESENT.**—Messrs. T. Barwick (Chairman), T. Morrisby, J. Cramp, F. Valentine, H. Richardson, Allen Bailey, J. J. Pitt, W. Ryan, J. Hallam, H. Howard, and W. Clifford (Hon. Secretary).

**NEW MEMBERS.**—Messrs. T. J. Cramp, W. Calvert, M. E. Shoobridge, H. Richardson, W. Whylic, J. J. Pitt, and W. Ryan.

**SPRAYING.**—Proposed by Mr. Morrisby, "That compulsory spraying be enforced in Glenorchy." Mr. Morrisby stated he was convinced that arsenate of lead was the best spray. Mr. Howard seconded the motion, and stated his experiences with Paris green, red oil, and arsenate of lead. He found the latter to be the most reliable. Mr. Valentine thought that as there were only members of the Board present, and these only represented a portion of the fruitgrowers, the matter ought to be left to a public meeting to decide. He would therefore move, "That the Secretary be instructed to inform the Council that this Board is in favour of compulsory spraying, and request that a public meeting be called of all the fruitgrowers in the district to discuss the matter." Seconded by Mr. J. Pitt, and carried. Mr. Salter and Mr. Coverdale and several other members discussed various phases of the subject, and Mr. Cramp proposed, "That this Board recommends that there be three sprayings—one in October, November, and March respectively—unless the inspector was satisfied that a less number would suffice." Seconded by Mr. J. J. Pitt, and carried.

**MEETING-DAY.**—Moved by Mr. Barwick, "That the Board meet again on August 17, and thereafter on the 3rd Tuesday in each month, and that the Secretary request the General Secretary to inform Mr. Benson that this Board would always consider his presence a favour and a pleasure." Seconded by Mr. Clifford, and carried.

## Irish Town, July 24.

**PRESENT.**—Messrs. G. D. McPhail, M. O'Halloran, — Reid, W. R. Johns, C. Finter, and E. L. Smith (Hon. Secretary).

**CORRESPONDENCE.**—Correspondence was read from New Ground Board *in re* tret off potatoes; and the Organising Expert asking for information *in re* price of land, &c. for intending immigrants. To these queries replies were drafted after considerable discussion, and Secretary requested to forward same.

## Kindred, July 10 and August 7.

July 10.

**PRESENT.**—Messrs. T. D. Lewis, L. J. Howard, N. E. Loane, W. J. Polden, Sen., H. Vertigan, A. R. Polden, C. Foster, and C. C. Polden (Hon. Secretary), and one visitor.

**POTATO INDUSTRY.**—Considerable discussion took place on this subject. Members had intended purchasing a sprayer, but in view of the adverse reports regarding spraying from different districts, it was decided that the purchase of a machine be deferred until further experiments had been made.

**SOIL ANALYSIS.**—It was decided that the Board should forward samples of soil for analysis.

**IMMIGRATION AND TRET ON POTATOES.**—Circulars on these subjects were received, and ordered to be discussed at next meeting.

**POTATO BLIGHT.**—The Secretary stated that the season before last he planted a small patch of land (about 4 rods square) with Up-to-date potatoes, and secured an excellent crop of sound tubers. This season the same piece of land was planted with potatoes of the Redskin variety, which, so far as the tops were concerned, also yielded an excellent crop. When digging operations had been concluded, however, it was found that the whole of them were badly affected with blight, though a few roots (self-sown) of the Up-to-date species in the same plot were perfectly clean. The tops of a paddock of Redskins close by were destroyed by blight, but not more than 5 per cent. of the tubers were affected. It was also noticed that in those paddocks in which the blight killed the tops quickly the tubers were not so badly affected as in those where the disease "went through slowly."

August 7.

**PRESENT.**—Messrs. H. Vertigan, W. Polden, Sen., T. D. Lewis, E. Russell, G. Weindorfer, S. Vertigan, A. R. Polden, T. B. Yaxley, C. Foster, N. Vertigan, A. Mott, N. E. Loane, H. Arnold, F. Granger, D. G. Cowle, and C. C. Polden (Hon. Secretary).

**VISITOR.**—Mr. Morgan.

**NEW MEMBER.**—Mr. T. B. Yaxley.

**TRET OFF POTATOES.**—It was proposed by Mr. E. Russell, and seconded by Mr. A. R. Polden, "That the Secretary write to the Merchants' Association protesting against the tret taken off potatoes."

**IMMIGRATION.**—The Secretary also read the circular from Mr. Evans in regard to immigration matters, and it was proposed by Mr. C. Foster, and seconded by Mr. W. Polden, "That Mr. Weindorfer write a report and submit it to next meeting."

**CHART.**—Proposed by Mr. Weindorfer, and seconded by Mr. Loane, "That the Secretary write and thank the Director for the chart that he presented to our Board."

**CO-OPERATION.**—The Chairman read the prospectus of the Tasmanian Produce Growers' Agency, Limited. The Chairman addressed the meeting on the benefits of co-operation, and the meeting was unanimously in favour of the proposed association. Proposed by Mr. Weindorfer, and seconded by Mr. D.

G. Cowle, "That the Secretary write to the association and ask if persons taking shares can pay for them by allowing a portion of produce when delivering same."

**QUARANTINE.**—Proposed by Mr. T. B. Yaxley, and seconded by Mr. F. Granger, "That this meeting protest against any relaxation in the present period of quarantine, and the Secretary write and convey the motion to the members for Darwin."—Carried unanimously.

**POTATO-IMPORTATION.**—Proposed by Mr. C. C. Polden, and seconded by Mr. A. R. Polden, "That this Board is of opinion that the price charged for inspection of potatoes (1s. 3d. per ton) should be reduced."—Carried.

### Mowbray, July 12.

**PRESENT.**—Messrs. S. Moore (Chairman), A. H. Heathorn, F. C. Parsons, J. G. Morton, G. Brumby, J. Zimmerman, B. Edwards, A. Champion, W. Howard, W. Geale, and G. H. Boatwright (Hon. Secretary).

**CONFERENCE.**—A letter was read from the Federated Employers' Union, asking that a representative be sent to the conference to be held at Hobart. Ordered, that the said correspondence be received.

**CHARTS.**—It was resolved that the Board procure Nos. 1 and 2 Wellington charts.

**LAND FOR SELECTION.**—On the proposal of Mr. Heathorn it was decided that the Secretary write to the Minister of Lands, and ask that all reserved and leased lands in the vicinity of Smithton, extending from Deep Creek on the east to Muddy Creek on the west, be thrown open for selection at the earliest possible date.

**RAIN-GAUGE.**—The Secretary was empowered to erect a rain-gauge in the district.

**POULTRY.**—Mr. Heathorn, as secretary of the local poultry society, asked for the co-operation of the Board in securing the services of the Poultry expert in connection with the forthcoming show, to be held on September 7.

**DELEGATES' REPORT.**—Messrs. Champion and Geale gave a resume of the proceedings at the recent agricultural conference held at Launceston.

**LAND DRAINAGE.**—On the motion of Mr. Geale it was resolved that the Board ask that a sum of £100 be placed on the supplementary estimates for the purpose of draining the experimental plot.

**NEW MEMBER.**—Mr. C. Oliver.

### New Ground, July 6.

**PRESENT.**—Messrs. G. H. Parsons (Chairman), J. McGee, A. T. Lade, R. O. Douglas, D. Butler, R. R. Douglas, J. Richards, A. Douglas, T. Addison, H. Bauld, L. Douglas, and J. L. Thomas (Hon. Secretary).

**GALLWORM.**—A discussion took place as to the best crop to grow before potatoes as a preventive for gallworm. Algerian oats and rape were recommended, and fallowing was also said to check it to some extent.

**DAIRYING.**—Members were of opinion that farmers should co-operate in the purchase of stud bulls for dairying purposes.

**POTATOES.**—The following resolution, moved by Mr. T. Addison, was carried unanimously:—"That the Director be asked to bring the subject of tret on potatoes under the notice of all Boards of Agriculture, and also urge them to protest to the Merchants' Association against the deduction of tret from consignments of potatoes." It was pointed out that merchants still deduct as much from the small bags as they did when ten bags went to the ton. It now takes fifteen to make a ton—a considerable difference; also, as nearly all potatoes are now picked over a second (and in some cases a third) time, practically no dirt remains in the bags. Farmers, members considered, therefore have good cause to complain.

**QUARANTINE.**—Resolved, on the proposal of Mr. J. McGee, "That this Board is opposed to any alteration in the present quarantine regulations."

**FAT LAMBS.**—Members considered that the time had arrived when freezing works should be erected at either Devonport or Burnie, preferably at the latter place which, it was considered, was the more centrally situated as regards the Coast. It was stated that farmers were now going into the fat lamb business on a larger scale, there being no blight or labour troubles to be encountered in this industry. Members thought that frozen lambs from the North-West Coast would prove equal to the best sent from New Zealand.

**DELEGATE'S REPORT.**—Mr. Addison gave an interesting summary of the proceedings at the Launceston conference, and was thanked by the Chairman for his attendance on behalf of the Board.

### Queenborough, June 26 and July 27.

*June 26.*

**PRESENT.**—Messrs. L. Rodway (Chairman), T. Williamson, D. Balchen, H. E. Westbrook, and W. H. Connor (Hon. Secretary).

**DELEGATE'S REPORT.**—The Secretary summarised the proceedings of the conference held at Launceston, and was accorded a vote of thanks for his attendance at same.

**MEETING-ROOM.**—The Chairman and Secretary were requested to try and procure a suitable room in Hobart as a meeting-room for the Board. It was pointed out that by so doing the membership was likely to be increased, several gentlemen having promised to join if the meetings were held in a more central place.

**NEW MEMBER.**—Mr. R. Butler.

*July 27.*

**PRESENT.**—Messrs. L. Rodway (Chairman), T. Williamson, D. Balchen, F. T. Ward, and W. H. Connor (Hon. Secretary).

**VISITORS.**—Messrs. Woolley and Lee.

**MEETING-ROOM.**—The Secretary reported that the committee-room at the Temperance Hall had been secured at 2s. 6d. per night.

**ELECTION OF OFFICERS.**—Mr. L. Rodway was unanimously elected Chairman for the ensuing year. Moved by the Secretary, and seconded by Mr. Woolley, "That Mr. Thos. Williamson be Vice-Chairman."—Carried. Mr. W. H. Connor was elected Secretary and Treasurer on the motion of Mr. Williamson, seconded by Mr. Balchen.

**NEW MEMBERS.**—Messrs. Woolley and Lee.

**TITLE OF BOARD.**—After careful consideration it was decided to call this Board the "Hobart" instead of "Queenborough."

**DAY OF MEETING.**—It was resolved to hold future meetings on the last Wednesday evening in the month.

**ACCOUNTS.**—The Secretary read statements of accounts for the past year, which showed a small credit balance. The balance-sheet as read by the Secretary was adopted on the motion of the Chairman.

### South Preston, June 9.

**PRESENT.**—Messrs. F. Tongs (Chairman), J. Peebles, J. Porter, J. Lewis, A. Gillard, F. Delaney, J. Yaxley, and R. G. Allison (Hon. Secretary).

**QUARANTINE.**—The Chairman said that since his election as delegate to the Launceston conference he had given a good deal of thought to the quarantine question, and had come to the conclusion that in the best interests of the dairying industry it was necessary that the regulations should be relaxed in favour of dairy stock. He would like an expression of opinion by the Board in the matter. If a majority was against relaxation he felt he could not represent them, and therefore would resign the position and allow mem-



bers to appoint someone else as delegate. After discussion it was resolved, on the motion of Mr. F. Tongs, "That this Board is of opinion that the quarantine regulations should remain as at present." The Chairman then tendered his resignation as delegate, which was accepted with regret. As no other member was willing to attend, the Branch was unrepresented at the conference.

**HORSES.**—On the motion of the Chairman it was decided that the Director's attention be called to the fact that horses for military purposes were being imported from the mainland instead of being purchased in Tasmania, where the supply was quite equal to the demand.

**SPRAYING.**—It was resolved to bring under the notice of the Director the fact that Mr. A. M. Lea did not visit Mr. Tongs' paddock to inspect result of spraying operations at the time of digging.

**SECRETARIAL.**—The Secretary (Mr. R. G. Allison), who is leaving the district, handed in his resignation, and was accorded a hearty vote of thanks for his services to the Board. Mr. F. Tongs was elected to fill the vacancy.

### Staverton, July 21.

**TRET ON POTATOES.**—It was resolved, on the initiative of Mr. A. G. Cox, that the Board support the resolution of the New Ground Board *in re* protesting against the unfair treatment by merchants in regard to the tret deducted for each bag of potatoes.

**IMMIGRATION.**—Messrs. T. Wootton, J. F. Cox, and D. Wyllie were appointed a sub-committee to draw up a report for the information of the Immigration and Intelligence Branch.

**QUARANTINE.**—Resolved, "That this Board is opposed to any alteration in the present quarantine restrictions."

**MEETING-ROOM.**—It was decided that the Secretary write to the Director of Education *in re* free use of State school for meetings of the Board.

**FRUIT EXPERT.**—On the proposal of Mr. J. F. Cox the Secretary was instructed to write to the Director of Agriculture requesting that the Fruit Expert be asked to give a demonstration on pruning at Mr. T. Wootton's orchard at an early date.

**POULTRY AND PIGS.**—It was resolved that the Secretary write to the Director of Agriculture requesting that the Poultry Expert be asked to give a lecture on pigs and poultry at a convenient date.

### St. Helens, July 25.

**PRESENT.**—Rev. Travers (Chairman), Dr. Smellie, Messrs. G. H. Briggs, T. Haley, C. M. Fairclough, J. C. Smith, and C. R. Bowling (Hon. Secretary).

**CORRESPONDENCE.**—Letters were read from the Organising Secretary, and discussed at length.

**IMMIGRATION.**—Messrs. T. Haley, G. H. Briggs, C. R. Bowling, and Rev. Travers were appointed a sub-committee to supply the Department with the information required for intending immigrants.

**LAND FOR FRUITGROWING.**—Much satisfaction was expressed at the Agricultural Department's action in supplying Mr. Atkinson with particulars of areas, &c., of fruitgrowing land around St. Helens, and the hope is entertained that Mr. Atkinson will visit this locality, when the Board will be only too pleased to furnish all the information he may require.

**FRUIT EXPERT.**—It was decided to again ask the Department to allow the Fruit Expert to visit St. Helens.

**THE POTATO INDUSTRY.**—The memorandum with regard to the resolution by the New Ground Board was discussed, and it was decided that, Portland not being a potato district, the Board did not feel competent to express an opinion.

## Stoodley July, 11.

**PRESENT.**—Messrs. W. Bannon (Chairman), W. Scanlan, J. Powlett, J. Charlesworth, J. Bryan, C. Lehman, P. Leo, J. Cooke, J. Collins, J. Castles, A. Tucker, G. Nolan, and J. Leo (Hon. Secretary).

**SEED.**—Seeds of ornamental trees forwarded by the Department were distributed among members. A generous sample of the celebrated strawberry clover seed was included in the parcel.

**FLAX.**—A very animated discussion took place as to the possibility of making flax a regular crop for farmers along the North-West Coast. Members considered that potato-growing, with its attendant worries, was not the "good thing" it had been, and were of opinion that if farmers were assured of a market, flax would be grown in considerable quantities. It was resolved therefore to co-operate with neighbouring agricultural bodies for the purpose of obtaining more information as to the best methods to be adopted for growing and marketing the crop.

## Stowport, July 12.

**PRESENT.**—Messrs. W. A. Carruthers (Chairman), R. Rutherford, Jun., H. N. Sleight, J. W. Elphinstone, A. Viney, T. Atkinson, Jun., W. Rutherford, W. Jennings, A. Little, W. Viney, and J. G. Pearson (Hon. Secretary).

**NEW MEMBER.**—Mr. G. Elphinstone.

**CONFERENCE.**—The delegate to the Launceston conference, Mr. W. T. Atkinson, Jun., gave a report of the proceedings thereat, speaking very highly of the beneficial results likely to accrue to farmers as a result of such conferences. He considered that every farmer who could possibly manage it should make a point of attending. Mr. Atkinson was accorded a vote of thanks for his attendance and report.

**SOIL ANALYSIS.**—Mr. W. Rutherford stated that he had had a sample of soil from a 17-acre paddock analysed by the Department. The analysis showed that the soil contained an excess of iron and was deficient in lime. Several other members expressed their intention of having their soil analysed.

**DAIRYING.**—On the motion of Mr. W. Rutherford the Secretary was instructed to apply to the Department for the services of Mr. A. Conlon for the purpose of giving a lecture on dairying.

## Table Cape, July 8 and August 5.

July 8.

**PRESENT.**—Messrs. J. T. Johnson (in the chair), J. T. Tyrrell, M. Dowling, E. G. Addison, A. T. Morey, T. Kelly, J. D. Telford, Walter Medwin, P. Wade, and H. J. Smith (Hon. Secretary).

**RESIGNATION.**—Mr. R. Old's resignation was accepted with regret.

**CROP AND WEATHER REPORT.**—Wheat and late potatoes are turning out well, the colour of the former being good. The oat crop is promising. Several acres of horse beans have been sown for early crop for pig feed, and some farmers have commenced planting early potatoes (Commonwealth and Bismarck). Hares and sparrows are very troublesome, and the opinion was expressed that systematic poisoning on the part of farmers was advisable. A large quantity of rain has fallen—now a spell of fine weather, and farm work is well forward.

**DELEGATE'S STATEMENT.**—Mr. J. D. Telford gave a resume of the work done at the Launceston conference, and explained his action *in re* the quarantine regulations. In answer to a question by Mr. Tyrrell, Mr. Telford stated that no provision was made by which dairymen from other States settling in Tasmania might bring their dairy herds with them. In answer to another question Mr. Telford stated that nothing was done in regard to silos. Mr.

Tyrrell, who is opposed to any relaxation of the quarantine regulations, expressed the opinion that he was satisfied there was no likelihood of anyone importing dairy cattle under the Director's proposals. Mr. Morey stated that many members of the Board who were present at the conference in the Wynyard school on the 25th March were averse to any relaxation of the regulations, and yet they did not record their votes against the proposals. Exception was taken to the vote given by Mr. Telford, the Board's delegate at the Launceston conference, in favour of an amendment of the quarantine regulations. Mr. Tyrrell maintained that the delegate should carry out the instructions of the Board, whilst Mr. Telford contended that a delegate should have a free hand. A long discussion followed, Messrs. Tyrrell, Morey, Telford, and the Chairman taking part. Eventually, on the motion of Mr. Tyrrell, a hearty vote of thanks was accorded Mr. Telford for acting as delegate.

**PIG INDUSTRY.**—The Chairman announced that Messrs. Telford and Dowling had been invited to attend a conference *in re* the pig industry, to be held at Launceston on the 13th July. A long discussion ensued on the raising and feeding of pigs. The general opinion was that the Government should organise the pig and lamb export trade. Mr. Dowling stated that farmers could not dispose of their pigs, and hoped that something would result from the conference. Mr. Morey mentioned that a small trial shipment of pork from Australia brought 6d. per lb. on the London market, the expenses being 1½d. per lb. Mr. Tyrrell, in relating his experience in England, stated that he had bought American pork in an inland town at 4½d. per lb. A discussion also took place on the most suitable breed for pork-raising.

**NON-COMPLIANCE WITH RULES.**—The names of the following were struck off the roll for non-compliance with the rules:—Messrs. B. Cross, W. Old, R. Hamilton, C. Gilmour, H. Franks, and J. Bauld.

August 5.

**PRESENT.**—Messrs. J. T. Johnson (in the chair), J. Belton, M.H.A., W. F. Miller, M. Dowling, J. D. Telford, A. T. Morey, J. T. Tyrrell, B. Bramich, and H. J. Smith (Hon. Secretary).

**VISITORS.**—Messrs. J. Morris, J. P. Hobbs, and Jas. Shevenan.

**IMMIGRATION.**—A circular was read from the Department of Agriculture asking for information for the use of intending immigrants. The following were appointed a sub-committee to furnish the required information:—Messrs. Johnson, Telford, Belton, Tyrrell, and Smith.

**TRET ON POTATOES.**—On resolution submitted from the New Ground Board, it was resolved, on the motion of Mr. Tyrrell, "That this Board gives its hearty support to the resolution, and will use its best endeavours to abolish the iniquitous system."

**BUTTER.**—Mr. Tyrrell brought forward the question of regulations *in re* colouring in butter, and proposed that the Board should enter an emphatic protest against any alteration of the regulations. This was supported by Mr. Belton, who explained that he had from his place in the House of Assembly drawn attention to the matter, and shown the adverse effect it would have on the butter industry in Tasmania. The motion was carried unanimously.

**DELEGATE'S REPORT.**—It was resolved that the reading of the report of the Board's delegate (Mr. Telford) to the conference on the pork industry be deferred till next meeting.

**CO-OPERATION.**—Mr. Jas. Morris, one of the provisional directors of the proposed new company, "The Tasmanian Producers' Selling Agency," was invited to address the meeting. He explained clearly and forcibly the objects of the company, and showed the necessity of farmers organising in their own

interests. He stated that the directors desired, in the first place, to secure the support of farmers in the districts extending from Sisters' Creek to Penguin, and afterwards to extend operations to the districts further eastwards. He hoped that every farmer would be induced to take up at least five shares, and concluded by emphasising that "unity is strength." Mr. J. P. Hobbs showed what benefits were likely to accrue to farmers by eliminating the middleman, and also mentioned the saving to be effected in the purchase of manures, bags, twine, &c. Messrs. W. F. Miller, M. Dowling, J. Belton, A. T. Morey, and J. T. Tyrrell supported the proposal, the latter pointing out the dangers and difficulties that would probably be encountered. After a reply by Mr. Morris, a hearty vote of thanks was accorded the visitor for his address.

**NEW MEMBERS.**—Messrs. J. Belton, M.H.A., B. Bramich, W. T. Miller, and Captain Thompson.

### Upper Mountain River, July 8.

**PRESENT.**—Messrs. G. S. Parsons (Chairman), A. Griffiths, A. Schmidt, Jun., W. H. Schmidt, C. Schmidt, E. H. Schmidt, and A. J. Stevenson.

**LECTURE.**—The Secretary reported that he had received a letter from the Director of Agriculture intimating that he had arranged with Mr. Inspector Ulbrich to meet the farmers of this district on the 14th June, and in the evening to give a lecture on Irish blight. This programme had been duly carried out. It was unanimously decided to pass a hearty vote of thanks to the Agricultural Department and to Mr. Inspector Ulbrich for his most interesting and exhaustive lecture. Members also decided to place on record their appreciation of the able manner in which Mr. Ulbrich had handled his subject.

**LABOUR EMPLOYMENT.**—The Secretary explained that he had received a circular from the Employers' Federation, asking that a delegate be sent from this Board to attend the Association's general meeting at Hobart. The Chairman, who had consented to represent the Board, stated that he had attended the meeting as promised, and explained the proposals of the Federation in relation to the employers of rural workers. He said that it had been decided to appoint organisers to canvass the rural districts, and endeavour to persuade all farmers to join the Federation for their joint protection. He explained that the minimum annual subscription had been fixed at £1, with the right to make a special levy of a like sum should it be required. Those present considered that this amount was too high for a minimum, contending that a farmer might own a farm whose capital value was, say, £1500, and employ only one farm hand besides himself, and yet be liable to a call of £2 in any one year. On the other hand a manufacturing employer owning a factory of the same capital value, but employing up to ten hands, would only be called upon to pay a like subscription.

### Wattle Grove, July 4 and August 1.

July 4.

**PRESENT.**—Messrs. E. Baldwin (Chairman), W. A. Schultz, T. Wilson, W. A. Philp, H. W. Smith, C. E. Cawthorn, and K. Lord (Hon. Secretary).

**ANNUAL REPORT.**—The Secretary read the annual report, which showed, *inter alia*, that the average attendance was 9, and that one special and seven general meetings had been held during the year.

**APPOINTMENTS.**—Chairman, Mr. E. Baldwin; Secretary, Mr. K. Lord.

**SUBSCRIPTION.**—The subscription was fixed at 1s. per annum.

**NEW MEMBERS.**—Messrs. W. Schultz, Jun., and T. F. Howden.

**MEETING-ROOMS.**—It was decided that the meetings of the Board be held in the local hall and the State schoolroom alternately as usual.

August 1.

**PRESENT.**—Messrs. E. Baldwin (Chairman), J. Murphy, F. Letch, W. C. Jones, A. Hammond, H. Baldwin, T. Conlon, J. T. Martin, J. P. Direen, H. Batge, T. J. Norris, and W. A. Philp.

**VISITOR.**—Mr. J. Baldwin.

**FRUIT SHIPMENT.**—After a lengthy discussion it was decided that the Secretary write to Messrs. Jones & Co. and Messrs. W. D. Peacock & Co., and ask if they, as growers' agents, will ascertain from the owners of the s.s. "Papanui" what compensation growers are likely to receive for losses in connection with that vessel as reported by cable. It was also resolved that, before booking space for next year, inquiries should be made as to whether steamship owners could not be held responsible for "carrying fruit in bad condition." The question of central packing sheds was, after a short discussion, allowed to stand over until next meeting.

## EAST TAMAR PRODUCERS' ASSOCIATION.

July.

**PRESENT.**—Messrs. D. Medwin (President), R. J. Scifleet, W. Forsyth, M. Button, J. Waldon, W. Clare, E. Archer, C. White, W. Carnie, W. Fletcher, F. Allison, R. J. Box, J. G. Scifleet, J. Bunting, and W. Kidd.

**NEW MEMBERS.**—Messrs. J. Lamont, A. Crossley, D. Corcoran, F. V. Allison, W. Fletcher, J. J. Westbrook, H. S. Oliver, and W. White.

**REPORT.**—A report of the conference proceedings was received from Mr. Likerman, together with a donation of one guinea towards the show funds. The Secretary was instructed to convey the Board's thanks to the donor for his generous contribution.

**SPRAYING MATERIALS.**—Mr. R. J. Scifleet reported that in an interview with Mr. Benson that gentleman had freely acknowledged the necessity for legislation to secure a standard of purity, and if not able to include it in the "Pure Foods Act" he would recommend Parliament to consider the matter.

**LOCAL PROGRESS.**—Mr. Kidd moved the following resolution:—"That in view of future developments in the East Tamar districts, and in order to conserve the export and import trade of the northern end of the State to the North, this Association considers it advisable that steps be taken with the object of making provision, at the head of bold water in the Tamar River, for the location of a deep-water port, and the connection of such port with Launceston by railway." Discussion was freely indulged in, both *pro* and *con*, and keen interest shown in the proposal by all present. The debate was adjourned until next meeting, when a fuller attendance may be expected.

**PIGRAISERS' CONFERENCE.**—On the motion of Mr. C. White it was resolved, "That the Department of Agriculture be asked to consider the advisability of supervising a trial consignment of frozen pork and bacon to European markets, and that growers be asked to find sufficient carcasses (delivered in cool storage); the Department to pay freight and place the consignment on a market." The Secretary was instructed to forward the motion to the Director of Agriculture for inclusion in the agenda-paper of the conference.

**LIVE WEIGHTS.**—The following resolution, moved by Mr. White, was carried:—"That this Association strongly supports any movement that will lead to buying and selling of pigs by live weight at all public sales and by

bacon factories; weight to be taken at place of purchase." The motion, which was carried unanimously, was ordered to be forwarded to the Director with the previous resolution.

**THANKS.**—On the initiative of Mr. Walden, a unanimous and hearty vote of thanks was passed to the daily press for the generous assistance accorded to the Association at its inception and subsequently. Mr. Walden said that the power of the press to give publicity to progress was almost absolute, and it was gratifying to note that the East Tamar districts had the press as a friend.

**ALTERNATE MEETINGS.**—Mr. Allison said that as the district is such an extensive one the monthly meetings should be arranged at varying centres, so as to promote a closer action. The matter was deferred for future consideration.

**SOCIAL EVENINGS.**—These were strongly advocated, and a committee, consisting of Messrs. Scifleet, Carnie, Bunting, White, Forsyth, and Allison, were appointed to arrange a social for members and their lady friends at an early date.

**LADY MEMBERS.**—Some lady supporters of the Board having sought information as to membership, it was resolved, on the motion of Mr. Bunting, that ladies be eligible for membership on equal terms with other members.

**EXPERTS' VISITS.**—Reference was made to the recent visit of Mr. Osborne and his able demonstrations, at the invitation of the Association, at various orchards near the town. Members living at a distance had not been able to attend owing to the scarcity of time at their disposal. The Secretary was instructed to communicate with the West Tamar League, with a view to obtaining an extended visit from the Horticultural Expert and the Analyst at an early date.

## CORRESPONDENCE.

### A CORRECTION.

To the Editor of the "Agricultural Gazette."

Dr. W. A. Harrison (St. Marys Board) writes:—"Will you kindly correct the report of the May meeting of the St. Marys Board, as follows:—

"'Mainland' should be 'midland' cattle disease, by which name I believe it has long been known in Tasmania.

"'Dr. Harrison thought the "coast" disease might be a form of loup-ill.' I did not think so, but asked members if it resembled that disease, as I had never seen 'coasty' stock in Tasmania, though I have seen plenty of them in Western Australia. There the complaint is a wasting attributed (I do not know if properly so) to stomach and intestinal derangement from ingestion of sand when the herbage is short. The outward and visible sign is an eczema of the heels, sometimes extending halfway up the leg, as if all the hair had been worn off. The affected animals generally began to recover immediately, without any treatment, if they were removed to an inland pasture or non-sandy island."

# METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING JULY, 1911 AND 1910.

Station.	1911.	Wet Days.	1910.	Average.
<b>NORTHERN.</b>				
Marrawah ... ..	557	16	857	815
Cape Grim ... ..	283	17	456	466
Sunny Hills ... ..	458	18	711	—
Irish Town ... ..	382	19	635	—
Black River ... ..	345	12	640	513
Stanley ... ..	210	18	385	415
Flowerdale ... ..	235	7	805	—
Flowerdale Upper ... ..	550	13	887	713
Yolla ... ..	579	17	899	854
Wynyard ... ..	—	—	837	—
Burnie ... ..	286	13	573	452
Ridgley ... ..	546	5	754	—
Ulverstone ... ..	372	12	614	448
Kindred ... ..	546	14	573	—
Devonport ... ..	365	16	498	498
Latrobe ... ..	—	—	476	431
Northdown ... ..	324	12	434	304
Beaconsfield ... ..	414	14	456	—
Low Head ... ..	305	21	378	287
Black Bluff ... ..	—	—	600	—
Moina ... ..	733	17	555	—
Central Castra ... ..	596	13	606	543
Wilmot ... ..	637	14	528	—
Gawler ... ..	—	—	550	582
Sheffield ... ..	504	11	708	—
Deloraine ... ..	*417	—	447	407
Caveside ... ..	517	13	367	—
Cressy ... ..	297	17	262	230
Longford ... ..	313	15	254	235
Westbury ... ..	429	13	326	335
Westbury State School ... ..	—	—	319	—
Carrick ... ..	—	—	287	—
Launceston ... ..	383	16	286	294
Glengarry ... ..	556	14	435	427
Frankford ... ..	—	—	579	502
Exeter ... ..	545	—	345	—
Lilydale ... ..	592	12	364	501
St. Patrick's River ... ..	663	15	467	—
Springfield ... ..	630	26	568	794
Springfield South ... ..	693	13	531	—
Scottsdale ... ..	428	15	433	526
Brankholm ... ..	475	11	550	—
Ringarooma ... ..	393	13	491	491
<b>WEST COAST MOUNTAIN REGION.</b>				
Whale Head ... ..	—	—	537	—
Mt. Balfour ... ..	797	—	785	—
Magnet ... ..	594	11	633	—
Waratah ... ..	665	25	540	938
Que ... ..	480	15	—	—
Tullah ... ..	461	14	—	—
Renison Bell ... ..	641	19	—	—
Mt. Read ... ..	809	19	437	1014
Chester ... ..	503	20	—	—
Dundas ... ..	666	20	—	—

\* Telegraphic reports only.

## RAINFALL--continued.

Station.	1911.	Wet Days.	1910.	Average
Zeehan ... ..	645	22	448	1047
Mt. Lyell ... ..	548	19	282	1097
Queenstown ... ..	546	15	261	...
Strahan ... ..	508	15	345	761
Cape Sorell ... ..	516	22	483	603
Pillinger ... ..	431	17	1131	--
CENTRAL PLATEAU.				
Great Lake ... ..	--	--	--	305
Circle ... ..	--	--	71	--
Roscarboro ... ..	--	--	84	--
Clarence ... ..	--	--	156	--
Bronte ... ..	273	12	50	--
Steppes ... ..	225	9	105	--
McGuire's Marsh ... ..	--	--	49	--
Woods' Quoin ... ..	189	25	160	--
Interlaken ... ..	--	--	81	254
Dog's Head ... ..	--	--	126	--
DERWENT VALLEY.				
Glenmark ... ..	--	--	91	--
Strickland ... ..	--	--	110	--
Bashan ... ..	--	--	168	365
Osterley ... ..	150	8	95	--
Bothwell ... ..	106	15	57	178
Cleveland ... ..	170	10	63	--
Hamilton ... ..	130	20	73	150
Ellendale ... ..	124	15	132	296
Glenora ... ..	91	11	63	178
Belmont ... ..	79	3	50	184
Clarendon ... ..	93	12	45	171
New Norfolk ... ..	81	12	54	177
Uxbridge ... ..	124	11	79	321
Lachlan ... ..	--	--	66	--
SOUTH-EASTERN.				
South Bruni ... ..	*130	--	402	398
Adventure Bay ... ..	114	13	--	--
Southport ... ..	*97	--	357	397
Lunnawanna ... ..	122	7	384	--
Port Esperance ... ..	--	--	277	302
Port Cygnet ... ..	114	13	177	--
Petchey's Bay ... ..	105	16	234	--
Middleton, Channel ... ..	83	11	188	--
Kettering ... ..	91	13	243	--
Franklin ... ..	133	9	--	248
Kingston ... ..	87	9	--	--
Mt. Nelson ... ..	104	6	211	207
Mt. Wellington (Gap) ... ..	267	17	662	512
The Springs ... ..	250	18	487	531
Hobart Observatory ... ..	98	17	203	2.3
Hobart Botanical Gardens	82	11	182	181
Hobart Waterworks ... ..	147	14	269	303
Glenorphy ... ..	*76	--	157	219
New Town ... ..	--	--	292	236
Bellerive ... ..	97	11	149	161
Lindisfarne ... ..	84	5	150	--
Rokeby ... ..	*77	--	173	181
Sandford ... ..	110	4	165	179
Premaydena ... ..	139	9	234	283
Carnarvon ... ..	205	16	420	431
Sorell ... ..	128	13	113	190

\*Telegraphic reports only.



## RAINFALL - continued.

Station.	1911.	Wet Days.	1910.	Average.
Cambridge ... ..	—	...	89	176
Craigow ... ..	72	5	102	—
Richmond ... ..	123	10	92	164
Brighton ... ..	93	6	81	136
Tea Tree ... ..	100	7	87	—
Bagdad ... ..	—	—	117	192
Broad Marsh ... ..	—	—	119	—
Kempton ... ..	—	—	65	131
<b>MIDLAND.</b>				
Spring Hill ... ..	113	12	65	147
Jericho ... ..	—	—	79	—
Mt. Seymour ... ..	—	—	109	148
Oatlands ... ..	160	23	76	129
Andover ... ..	189	11	108	153
Woodbury ... ..	91	12	49	—
Beaufront (Ross) ... ..	202	7	90	120
Bendeemer ... ..	310	10	182	219
Glen Connell ... ..	—	—	147	211
Campbell Town ... ..	—	—	103	141
Hanleth ... ..	214	6	187	158
<b>EAST COAST.</b>				
Kellevie ... ..	125	11	283	—
Buckland ... ..	106	10	124	—
Triabunna ... ..	137	8	309	166
Louisville ... ..	101	10	—	—
Swansea ... ..	120	15	305	251
Riversdale ... ..	99	7	312	176
Cranbrook ... ..	—	—	338	215
Lake Leake ... ..	—	—	182	344
Ormalee ... ..	153	9	144	214
Pingah ... ..	140	7	162	220
Gullenswood ... ..	106	11	337	247
St. Marys ... ..	128	5	706	—
Tower Hill ... ..	—	—	340	—
Mathinna ... ..	259	10	293	329
Scamander ... ..	110	7	388	188
St. Helens ... ..	140	17	386	270
Gould's Country ... ..	262	11	480	440
Lottah ... ..	447	22	672	758
Eddystone Point ... ..	*167	—	263	282
Boobyalla ... ..	127	11	308	—
<b>KING ISLAND.</b>				
Cape Wickham ... ..	—	—	411	304
Yambacoon ... ..	440	17	500	384
Currie Harbour ... ..	522	20	628	—
Monk Breton ... ..	—	—	800	—
Surprise Bay ... ..	512	26	845	—
The Chalet ... ..	403	18	817	—
<b>FLINDERS ISLAND.</b>				
Thule ... ..	—	—	218	282
White Mark ... ..	—	—	91	—
<b>OTHER ISLANDS.</b>				
Kent Group ... ..	—	—	259	—
Goose Island ... ..	—	—	309	225
Cape Barren Island ... ..	—	—	440	—
Swan Island ... ..	—	—	298	—
Maatsuyker Island ... ..	—	—	357	397

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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

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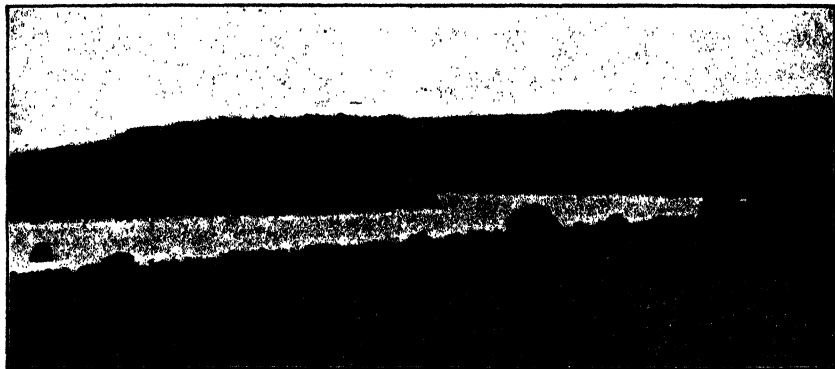
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VOL. XIX., No. 9.

SEPTEMBER, 1911.

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## THE PHENOMENON OF PLANT GROWTH.

**W**HEN a seed is placed in a suitable environment as regards warmth and moisture, it absorbs the latter, swells, and softens; the starchy matter stored up for the nutrition of the young plant becomes soluble, and the radicle or future root descends into the soil, whilst the plumule ascends to form the stem of the plant.

It is at once clear that the formation of a good seed-bed allows the penetration of the young roots into the soil; and the depth of planting the seed should be such that the first young leaf-shoot will reach the light before the store of food provided in the seed is exhausted.

In the case of plants which live only one year there is a marked activity of growth of the root and leaves, which collect, and, with the aid of sunlight, prepare material for the growth of the plant. The leaves are the centres of activity, where the materials from the root meet the carbon of the atmosphere, and the various compounds required for the nourishment of the plant are elaborated. In the case of annuals the next step is the formation of the flower, which is followed by seed, after which the plant dies.

The composition of a plant, as above mentioned, varies at different periods of its existence. In the early stage the nitrates and mineral matters taken in in the water absorbed through the root hairs are in



excess, but as growth proceeds the percentage of carbonaceous material derived through the leaves steadily increases.

When the crop is in full bloom it ceases to take in any more nitrogen and potash, although the absorption of phosphoric acid continues a little longer, but the assimilation of carbon through the medium of the small openings or stomata on the under surface of the leaves will continue as long as the plant remains in a green condition.

When the process of seed formation commences the whole of the energies of the plant appear to be concentrated in the direction of transporting the materials (starch, albuminoids, &c.) from the root, stem, and leaf, and depositing same as seed. In what are known as good seasons (*i.e.*, when the life-history of the plant has been uninterrupted) the migration or transfer of material from the vegetative portion of the plant will be very complete, and the straw of a cereal crop at harvest time found to be depleted of food-stuff.

Should, however, the crop fail to reach maturity, or in seasons of deficient sunshine and imperfect seed-formation, the material assimilated and manufactured during the growth of the crop remains in the straw. It is thus quite obvious that cutting the crop before the seeds have been completely formed is the most certain means of securing a straw of high-feeding quality.

In dealing with plants which live longer than one year a different order of things prevails. The same marked activity of growth of the vegetative organs (roots and leaves) is observed, but at the end of summer, instead of the formation of seed, the matter collected during growth is stored up in the roots, tubers, or stem. The next season the plant sends up a flowering stem, and the food-stuff thus accumulated is then used for the production of seed. This is the cycle as regards biennial plants, such as mangels, &c.

Again, a difference is met with in the case of trees and shrubs which last for years, and which do not form fleshy receptacles. Here we have a trunk of more or less thickness and stout roots in active growth for a greater part of the year. Between the bark and the wood is a layer of cells called the cambium layer, which is constantly dividing to form fresh wood and bark; and running at right angles to the pith of the tree are also channels of cells called the medullary rays. It is in these regions that material is stored to supply the necessary vitality to perennial plants when active growth is taking place.

It will now be of interest to show briefly what materials are first employed to serve as nutritive matter for plant growth, and by what agency such combinations are brought about. By growing plants in sand free from any organic matter it has been demonstrated that large quantities of carbon and nitrogen are obtained, which, together with the elements of water and the mineral salts imbibed with the water, constitute the organic materials of plants. Now, where did the carbon come from? As the sand did not contain any humus it is quite clear that the source of supply must have been the atmosphere. In the air there are about

three parts of carbon in 10,000. This, though only a very minute quantity, suffices, as the leaves, as compared with their weight, offer an enormous absorbing surface, and are constantly being agitated by the wind, which brings a large quantity of carbon dioxide into contact with the plant.

Now, providing the plant is in a normal condition-- that is, the leaf-cells are filled with water--and are constantly being supplied with moisture from the roots to replace that lost by transpiration, the orange and yellow rays from the sunlight acting on the green colouring-matter in the cells will cause the carbon dioxide absorbed in the water of the plant-cell to decompose, the oxygen being liberated whilst the carbon is retained. The carbon unites with the elements of water in the cell, and we have the simplest primary compound, known as formic aldehyde. By a simple process of condensation this material would be changed into one of the sugars.

As will be seen from the foregoing, light is absolutely essential to the assimilation of carbon by the leaf-cells, and this fact is clearly borne out by the rapid uprush of cereals in countries like Norway, the long period of light in summer allowing uninterrupted growth to take place.

Starch is one of the earliest products of assimilation, and is very abundant in the leaves exposed to sunlight; but at the end of the day it disappears, being changed into some form of sugar by the action of an unorganised ferment, or enzyme. Human saliva contains such a ferment, which is called ptyaline; gastric juice contains pepsin, and in pancreatic juice the ferment is called trypsin.

In the germination of seeds referred to at the beginning of this article diastase converts the starch into sugar.

By means of this transformation the starch is conveyed by the sap to distant parts of the plant when growth is actively going on, or else it is reconverted into starch and deposited, as in the case of the potato, in the tuber.

Whilst it is comparatively easy to explain the formation of carbohydrates in plants, the manner in which the albuminoids, vegetable acids, and fatty matter are produced is not so clear.

According to Warrington, the mode in which albuminoids are formed is possibly that the nitrates taken up by the roots are converted into ammonia, the ammonia into amides, and the amides finally into albuminoids. These changes were clearly shown by the investigations of Wood at Cambridge, when searching for an explanation of the changes in the composition of mangolds during storage. When pulled in the early autumn the roots were found to be full of nitrates--the form in which nitrogen is first taken up by the roots of plants. A few months later it was found on analysis that these nitrates had been largely changed into amides, and there was also an increase in the albuminoids and peptones.

To give a general idea as to the formation of fatty substances, resins, and vegetable acids, reference must be made to plant respiration. By this term is meant the phenomena of the absorption of oxygen and the

evolution of carbon dioxide. Although, as previously explained, plants absorb through the leaves carbon dioxide, retaining the carbon and releasing the oxygen, yet in all the organs, roots included, plants behave like animals; *i.e.*, they absorb oxygen, and give off carbonic acid gas. The leaves throw off carbon dioxide, except when they are exposed to the light and respiration is masked by assimilation. During the hours of darkness, when assimilation ceases, the evolution of carbon dioxide can be easily discerned. One volume of carbon dioxide contains exactly one volume of oxygen, and the relation between the oxygen absorbed and the carbon dioxide given off will depend upon temperature. During cold weather the oxygen absorbed is usually in excess of the carbon dioxide evolved, whilst in warm temperatures the reverse holds good. Hence, when the quantity of carbon dioxide given off is greater than the oxygen absorbed, it is clear the plant is losing oxygen. This is the accepted explanation of the conversion of several forms of carbohydrates (glucose, &c.) into fatty substances and resins; and as glucose is derived from formic aldehyde, the same as starch and other sugars, the latter's place as the primary substance of plants is not affected.

The formation of acids in plant tissues is held to be due to a partial oxidation of neutral substances. In the laboratory it can be demonstrated that if starch or sugar or other saccharine bodies are treated with dilute nitric acid, oxalic and tartaric acids are produced. Now, the final production of the oxidation of carbohydrates, as shown by their composition, must be carbon dioxide and the elements of water. If the body were a nitrogenous one, ammonia must be added to the list. When, therefore, carbohydrates are oxidised at a low temperature, and combustion is not complete, the resulting product is an acid. Deherain cites such cases as the cacti, especially the prickly pear, as containing large amounts of oxalic acids and oxalates. Cacti (particularly the one mentioned) are not very permeable to air.



OURNESS in soils caused by want of drainage or the application of manures which use up the lime in the soil is responsible for most of the unproductiveness on the farms in this State.

## GARDEN NOTES FOR OCTOBER.

By J. OSBORNE, JUN., Horticultural Instructor.

## FLOWER GARDEN.

THE first week of this month should be devoted to the sowing of seeds for summer and autumn flowering plants that have been delayed from various causes. The advice offered in the notes for September is also suitable for this month. Young plants (from the seed sown in September) should be ready for "pricking-out" into boxes, or even in the open soil of the garden. In the latter case only the cleanest of sites should be chosen, the soil being worked into a fine tilth, and small beds formed, about 3 feet wide, with an "alley" between, so that the operator may avoid treading on the beds when planting, watering, weeding, &c. When engaged in "pricking-out" in the open soil, finish one bed right out, and water with a fine-rose pot. Shelter from the sun till the young plants make fresh root, and in no case remove the whole of the shelter at one time. Begin by taking it off at 3.30 p.m. for a few days; then remove the shelter at 1 p.m., a little later at noon, and in the course of a few days it may be allowed to remain off altogether. Where the young plants are "pricked-out" into boxes or shallow pans use a free loamy compost, with well-decayed stable manure added liberally. The plants are usually put in at about  $1\frac{1}{2}$  inch apart in the boxes, and also in the open soil. When the spaces between the plants become well filled with roots they may be "squared-out," using an old trowel or a broad-bladed knife, or even a piece of wood shaped nicely and sharpened on the edge, in order to cut the squares correctly. After planting place the boxes and pans, as the case may be, in a sheltered spot, and water thoroughly; subsequent waterings to be given only when required, or when the soil appears dry. Many plants may be planted now. Borders of violets should be renovated, and new ones put out. Lobelia from cuttings and seed should also be ready. Choose situations where a maximum of sunlight is to be obtained. Herbaceous plants, that have been neglected, should be attended to at once. Carnations and pinks from late cuttings may be put out; and another bed of gladioli and dahlias may be planted in a well-enriched bed. Sow sweet peas for main flower crop, and plant stocks from the first sowings—the Ten-week variety particularly. Penstemons from cuttings should now be put out, 18 inches apart (square). Wallflowers (from the autumn sowings), larkspur, pansy, antirrhinum, (snapdragon), and indeed, all biennial plants ready, should be dealt with during the month to prevent disappointment. During the last week of the month, salvias may be bedded out in warm positions to ensure a good display in the autumn. Chrysanthemums raised from cuttings should be planted without delay. Make the beds good, digging in well-decayed stable manure. The plants should be put in at 2 feet apart (square). Where they are obtainable, put in cuttings of lobelia for late summer planting. All shrubs that are intended to fill

gaps or to make new plantations should be got out at once. Prepare beds for general planting of annuals next month. Keep the hoe going continually, and when the days are hot and dry use the water-sprinkler freely.

#### KITCHEN GARDEN.

All early-sown beds should be kept free of weeds. Early potatoes should be kept hilled; do not dig till towards the end of the month. Late crops may be now planted, using the best late varieties of potato. Sow for main crop, cauliflower, cabbage, lettuce, radish, turnip, spinach, and French beans (chiefly Canadian Wonder). A good sowing of peas for summer use should be made (Yorkshire Hero or Veitch's Perfection). Keep weeds down, and stir the soil among the crops continually. Late in the month early-sown vegetable marrows and pumpkins may be planted. A good bed, made of half-rotted stable manure, should be prepared, or several small beds placed here and there, and sown with marrow and pumpkin seed, to come in after the first beds are past their best. Ridge cucumbers may be similarly treated. Prepare beds for early-sown celery, and make a sowing for late summer use. Sea-kale should also receive attention. Begin the bleaching. A hilling of fine earth is better than using a cover that excludes the light entirely. Cover all except the best leaves at the head. During dry weather give water freely to asparagus and rhubarb beds, and if the beds have not been well manured apply a liquid manure. This is made quite easily. Fill a chaff-bag with fresh stable manure, and place it in a large tub of water. Allow it to remain for half an hour, and on withdrawing the bag water freely with the contents of the tub. Do not use the manure twice. Tomatoes may be planted toward the end of the month—in well-prepared beds—the plants being set out 3 feet apart (square). When digging the beds make the borders good, and sow with parsley and, in some cases, with cabbage lettuce. The latter may be thinned out later. Should the weather at time of planting be bright and sunny, give the tomato plants a little shade during the hottest part of the day; and if the nights are clear it may be necessary to give a little protection to prevent possible damage by frost. Keep the hoe going, and in dry weather use the water-sprinkler freely.

#### GREENHOUSE.

The potting and general cleaning up of the greenhouse advised for September may be continued this month. Seeds of gloxinia, petunia, primula, obconica, and streptocarpus sown in the early days of September should be ready to handle. Tuberous begonia should also be ready by this time. These should be pricked out in clean soil, mixed with good sharp sand. Give the young plants a little shade for a few days, and do not water heavily. The moisture in the compost, with a light sprinkling at time of pricking-out, should be sufficient. Ventilate freely, and give such plants as palms, ferns, dracenas, &c., a good syringing morning and evening. Last year's bulbs of tuberous begonia and gloxinia should receive attention. Pot them in a good compost of loam,

sharp sand, a little peat, and well-decayed stable manure. Provide drainage for the plants. Cyclamen should be at their best just now. Water carefully. Should the bulbs throw up large numbers of leaves and flowers, a watering with liquid manure twice each week will help them wonderfully. *Be careful to give the plants clean water first.* Azaleas will be in evidence, and should be well cared for. Water freely and keep a sharp lookout for thrips, aphides, and mealy bug. As the plants finish flowering they should be put out into a half-shaded position, in order to make the necessary growth. The Indian rhododendron should be similarly treated. Pelargoniums and show, decorative, regal, and zonal geraniums should show signs of flowering. Where good growth has been made a watering with liquid manure will be of great assistance. Shade the plants when in flower during the hottest part of the day. Ventilate freely. A sharp lookout must be kept for aphids, and canary fly. Where it appears, syringe with phenyle (1 pint to 50 pints of water). A small sowing of cineraria, Chinese primula, and calceolaria for early winter flowering may be made. Use a light, well-drained compost, and do not sow the seed too deeply. Watch the young ferns for green aphids. All greenhouse plants the potting of which has been delayed should be attended to during the month. Pour a few canfuls of water over the floor of the house before opening and closing each morning and evening.



REEN-CROP manuring to supply humus, the original fertility, is sadly neglected in the areas embracing the so-styled chocolate lands. The same principle should be employed to enrich the third-class land when fruit-growing is carried on. Mustard is one of the best crops to use for this purpose.

## URINARY TROUBLES IN SHEEP.

(BALANITIS AND PHIMOSIS.)

By R. WILLMOT, F.R.C.S., Government Veterinary Surgeon.

THE abovenamed disease is very common in this State, and one from which there is a considerable mortality in sheep; and not only is there a loss from the death of the sheep, but there is also a considerable loss from the unthriftiness of sheep only slightly affected. It is a spontaneous affection to start with, due to the peculiar economy of the sheep (especially merinos), eventually culminating in a purely surgical disease. It is not contagious, as it is supposed to be by many persons, so no advantage to the flock can be obtained by disinfecting an affected sheep.

The disease affects the genital organ of the animal; but before I can explain further it is necessary to give a rough idea of the function of the kidney, and of the anatomical structure of the penis. The first function of the kidney is the filtration of water and some of its constituents from the blood, and the second is a true secretion from some of the substances brought to it in the circulating current. These substances in the urine of the sheep are mainly carbonate and phosphate of lime, ammonia-phosphate of magnesia, uric acid, iron, organic matter, and water, and in health should be held in a state of solution in the urine as it flows from the kidneys to the bladder, and should also be in solution when passed by the sheep. However, on the lowering of the temperature of the urine as it passes outwards they cease to be held in solution, and form a sabulous or gritty sediment which is disseminated round the part at the end of the penis. The urethra or channel for the urine runs under the skin from the extreme hind part horizontally on the belly to nearly the navel, ending in the prepuce which is situated at the end of the penis, and is a duplicated fold of the skin which forms an elongated loose sac covering the end of the penis. The inside of this sac is lined with mucous membrane studded with follicles which secrete a sebaceous (fatty) matter which lubricates the parts.

If an animal suffering from the disease be turned over it will be noticed that in a ring around the end of the penis the wool will be stained a dark-brown colour, and will be found to have a peculiar gritty feel, noticeable when an attempt is made to shear the part. This gritty feel is caused by the deposit of some of the solid constituents of the urine *as it cools down on being passed*. Now, some of this sabulous or gritty matter, as it passes over the edge of the prepuce during micturition, finds its way into the sac, and becoming mixed with the sebaceous secretion sets up a great amount of irritation in the preputial sac, which ends in inflammation and a great swelling, which can be seen and felt along the extreme part of the urethra. This occurs more particularly in the emasculated animal, because in such animals there is

always a shrinkage of the penis, which makes it more difficult for the urine to be ejected clear of the lips of the preputial sac. There is therefore a greater dribble into the prepuce in wethers than there is in entire animals.

If the disease is allowed to run on there is a gradual increase of the sabulous deposit within the prepuce, which causes so much inflammation and swelling that, owing to pressure on the end of the penis, the urine is unable to pass through the narrow opening, causing terrible pain and suffering to the animal. In very bad cases the pressure from the swelling may stop the circulation in the blood at the end of the prepuce or in the penis itself, which organs eventually slough away; or pressure of urine, through the animal being unable to pass it, may be so great in the urethra as to burst it in some part further back, and so allow the urine to escape.

#### THE TREATMENT

of this disease is purely and solely surgical; the application of disinfectants to the external parts, which is the common treatment, being absolutely useless. To carry out the proper treatment two instruments are necessary:—

(a) A grooved director or probe 5 or 6 inches long.

(b) A bistoury or small curved knife.

The two may be obtained for a few shillings, and every flockowner who suffers loss from the disease would be wise to have them, and keep them sterilised.

#### THE OPERATION.

The sheep must be placed on its back, and the director must be passed in at the end of the prepuce backwards and down as far as it will go. The bistoury must then be run down the director with its point and back in the groove as far as possible, after which the point of the bistoury must be raised and run through the skin, and the prepuce then slit through from top to bottom. Then with a bit of cotton wool the whole of the sabulous matter collected in the preputial sac must be wiped out, and the part dusted with powdered boracic acid or wiped over with some mild disinfectant, such as a 5 per cent. solution of carbolic acid in oil. The wound must be left open, and an occasional antiseptic applied to it. It is advisable that the wool in a circle for 2 or 3 inches round the end of the penis should be clipped short.

#### COMMENTS.

It is a curious fact that on one estate I visited, although merinos and crossbred sheep were pastured together, the owner had never seen a case occur in a crossbred; neither had he ever seen a case in a ram. Possibly the longer wool round the penis in the merinos holds more moisture, the evaporation from which causes greater cold, and consequently the quicker deposit of the sabulous matter in the urine of the one than in that of the other. For this reason, although it may entail more labour,



clipping the wool round the part in a merino is a precaution to be strongly recommended. In the case of the ram, probably the water is so far ejected from the penis that the dribble into the preputial sac does not take place. The disease therefore is rarely seen; but occasionally a small sore on the end of the penis or prepuce may be seen, caused by friction against the wool rendered gritty by the sabulous matter deposited from the urine. This may be prevented by keeping the wool closely clipped in a ring round the end of the prepuce, and *prevention is better than cure*.

I cannot give any reason for there being a greater deposit of sabulous matter in the urine of merinos than in other sheep, unless it is due to delicacy of constitution from in-and-in breeding. Sheep fed on some particular foods, such as mangolds, turnips, lucerne, &c., are more prone to an excess of these sabulous deposits, which are also not uncommon in cattle.

It does not require much expert knowledge to perform the operation I have described, which can also be done, but in a more crude manner, with an ordinary sharp knife dissecting from outwards lengthways through the fold of the prepuce, taking care not to injure the penis in the operation.



It is singular how long the rotten will hold together, provided you do not handle it roughly . . . . so loth are men to quit their old ways; and, conquering indolence and inertia, venture on new.—CARLYLE.

## SPRAYING EXPERIMENTS.

THE following valuable and interesting report upon some potato-spraying experiments conducted by the Van Diemen's Land Company upon the North-West Coast of Tasmania has been forwarded to the Minister of Agriculture by the manager of the company (A. K. McGaw, Esq.):—

Dear Sir,—As I find I am unable to attend the agricultural conference I am sending you, as promised, the result of my experience in spraying potatoes.

All the company's potato crops were sprayed with a mixture made up of 6 lb. bluestone and  $7\frac{1}{2}$  lb. of soda—more or less, to answer test paper—to 50 gallons water, 60 gallons of the mixture to the acre being used for the first spraying, and then gradually increased with the growth of the tops.

The whole of the seed was carefully selected. Some of the seed was dipped in a solution of bluestone and some in a solution of formalin, these dipping solutions being prepared as advised by the Department; the object of the dipping being to destroy any blight spores on the outside of the apparently clean seed. The rest of the seed used was untreated. The seed dipped in bluestone solution did not appear to show any advantage over the untreated seed. The seed treated with formalin, contrary to expectation, germinated before the untreated seed planted under the same conditions in the same paddock at the same time. In addition, the formalin-treated seed showed a much more vigorous growth throughout the season, and yielded at the rate of about 1 ton per acre more than the untreated seed.

All spraying was done by 5-row horsepower Fleming sprayers, which did excellent work. Spraying was commenced in every case when the tops were about 6 inches high, and the particulars of spraying and results are as follow:—

- No. 1.—Sprayed regularly every two or three weeks and after every heavy rain, in all nine times, until tops had died off gradually in the ordinary way. Crop dug in May and June absolutely free from blight, when every late crop in the district was affected. Yield: 6 tons to the acre. Seed treated with formalin solution. Cost of material for dipping seed and for nine sprayings, 25s. 6d. per acre.
- No. 2.—Sprayed four times; last spraying middle of March, up to which time crop was unaffected. Crop slightly attacked with blight on 6th April, when ripening off. Crop now being dug, and showing about 10 per cent. blight-affected. Seed untreated.
- No. 3.—Sprayed four times; crop slightly attacked by blight after spraying was discontinued for season. Loss from blight, 5 per cent. Seed treated with bluestone solution.

No. 4.—Two paddocks.—Sprayed seven times. Escaped general attack of blight early in February. Spraying discontinued before tops finally ripened off. First paddock: 15 per cent. loss, the yield of sound marketable potatoes being 5 tons per acre. Second paddock: two-thirds of the yield affected with blight so far as digging has gone. This second paddock, with the large loss from blight (and which promised a 7-ton crop), is a well-drained paddock on a hillside—the class of paddock which Mr. Kirk said experience would prove to be less likely to be affected than any of our other paddocks.

*General Observations.*—These potato crops were grown at different places on the Coast extending over 100 miles. In spite of the unaccountable loss from blight in the hillside paddock at No. 4—seven times sprayed—I am satisfied, by comparison with surrounding unsprayed crops, that spraying has paid us well. Had we not sprayed, the yield, judging from neighbouring crops, would not have paid the cost of seed cultivation and marketing. The crops referred to were all late crops which were growing during the blight season. Early crops are hardly to be taken into account when considering the question.

From the experience on the company's farms, from observation of other crops on various parts of the Coast, and from many enquiries made, I have come to the conclusion that spraying very decidedly pays; and that in a damp season like last season it is folly to grow Redskin potatoes unless properly sprayed, except probably on farms where the crop can be ready for digging by about the middle of January. In an average season three or four sprayings may be sufficient, but in a season like last spraying must be continued regularly until the tops have died off naturally. In the cases where sprayed crops were attacked by blight late in the season the advantage of partial spraying was clearly shown. By spraying up to the middle of March the crops were kept free of blight until the potatoes were of a marketable size. Late-planted crops attacked by blight early in the season were not worth digging, any sound potatoes being too small for market. It is difficult to account for the heavy loss in the hillside paddock—seven times sprayed—when an adjoining paddock similarly treated was not seriously affected, and it is quite evident there is yet a great deal to learn about potato blight. The soil in this particular case was rich and the crop heavy. The unsprayed crops least affected by blight, so far as I can ascertain, are those grown on old or light land with a moderate yield.

Our Redskin potato is clearly very subject to blight. Mr. Robert Laird's Commonwealth potato, which is now fairly largely grown on the earlier farms in the Emu Bay district, is so far more immune from blight than any other variety. There are many instances where that variety grown alongside the Redskin has been very slightly affected—in some cases not at all—while the Redskin variety has been very badly affected. Potatogrowers will have to seek new varieties of potatoes more resistant of blight than our Redskin, and in this matter I think your Department could give valuable service.—Yours faithfully,

Burnie, 14th June, 1911.

A. K. MCGAW.

## THIRD TASMANIAN EGG-LAYING COMPETITION.

THE following is the progress report for the third month of the third egg-laying competition conducted at the Springvale Tea Gardens, New Town:—

	Month of Aug.	Total.
1. White Leghorns, F. Hart, New Town ... ..	137	327
2. White Leghorns, A. G. Genders, Launceston ... ..	110	267
3. Silver Wyandottes, H. B. Taylor, Launceston ... ..	102	244
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	118	254
5. White Wyandottes, A. G. Genders, Launceston ... ..	128	309
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	135	305
7. Brown Leghorns, East Launceston Poultry Yards, Launceston ... ..	128	266
8. White Leghorns, Williams Bros., Fingal ... ..	114	220
9. White Leghorns, Briggs and Son, Longford ... ..	137	285
10. Silver Wyandottes, W. T. Stephens, Beulah ... ..	113	306
11. White Wyandottes, Rust Bros., Claremont ... ..	114	264
12. White Leghorns, R. J. Sheriff, Hagley ... ..	109	262
13. Black Orpingtons, G. Gilham, Launceston ... ..	72	138
14. White Leghorns, J. J. Harvey, Riana ... ..	92	158
15. White Leghorns, Mrs. B. Whittle, Launceston ... ..	113	231
16. R.C. Brown Leghorns, Briggs and Son, Longford ... ..	127	214
17. White Leghorns, A. Dickenson, South Bridgewater ... ..	117	262
18. White Leghorns, Reid and Stride, Liverpool-st., Hobart	125	295
19. White Leghorns, S. Ellis, Botany, N.S.W. ... ..	123	232
20. R.C. Black Orpingtons, W. T. Stephens, Beulah ... ..	85	89
21. Buff Orpingtons, A. G. Genders, Launceston ... ..	113	290
22. White Leghorns, O. H. Olson, Karoola ... ..	126	295
23. Black China Langshans, S. Ellis, Botany, N.S.W. ... ..	93	139
24. White Orpingtons, E. E. Roberts, Franklin ... ..	138	226
25. White Leghorns, Mr. B. Whittle, Launceston ... ..	145	316
26. White Leghorns, L. J. Dowling, Devonport ... ..	130	217
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ...	133	270
28. White Leghorns, J. Crisp, Launceston ... ..	130	263
29. White Leghorns, F. A. W. Gisborne, Risdon-road ... ..	131	291
30. S.C. Brown Leghorns, W. H. Hale, Strahan ... ..	136	296
31. White Leghorns, Mrs. Luke Williams, Moonah ... ..	136	275
32. Black Orpingtons, A. Battin, Launceston ... ..	140	323
33. White Leghorns, A. E. Terry, Sea View Hotel, Burnie	131	345

## WEATHER AND CROPS.

**EXTON.**—The weather during the past two months has been showery, though rain has not fallen so heavily as during the previous winter. It has been fine for the last 10 days, however, and large areas of peas and white oats are being sown. The winter has not been a very severe one, and as there was good feed in the autumn and the spring growth is so good, stock are in good condition, and have wintered well. Hay: There are some very good early crops of Algerian oats. Owing to the late harvest last season early sowing could not be pushed on, so that the area sown for hay is not as large as usual. Wheat: About the average acreage has been sown, and some spring crops are being put in. All the crops are coming away well, and growth during the last fortnight has been very marked. Peas: Early crops are looking well, and there still remains a large area to be sown. There will be about as many sown as last year. Peas generally yield very well in this district and are largely grown. White Oats: There is practically none up yet, though a good deal has been sown lately. The ground is "going in" well, and there should be good germination. Barley: It is too early to forecast the extent of the barley crop. It is not sown till late in this district. As the price is very good at present, it is likely that the area sown will be above the average. Potatoes: The crops this year were seriously affected by Irish blight. Digging is almost finished, and the results have been disappointing. One crop that was sprayed yielded a better percentage of sound potatoes than most others; but as the summer was so wet spraying was not done frequently enough. The acreage this year will not be so large, and more early varieties will be sown, as these were not affected so badly last season. Prospects: The prospects for the coming season at present appear very good. Growth for this time of the year is phenomenal, and, if the weather continues fine with occasional showers, the harvest should be well above the average. Stock: Lambing is general, and as the ewes are in high condition, the season should be good. There is also a good growth of wool.

**GROVE.**—The weather last month was very mild. There were some light showers, and several frosts occurred, while the wind was mostly from the north-west. Owing to the favourable weather the fruit-trees are more advanced (fully a fortnight) than they were at the corresponding stage of last season, and with propitious weather during the period of blossoming there is every probability of a heavy crop. Spraying with red oil for the mussel scale has been completed, and manure is now being ploughed into the orchards.

**KING ISLAND.**—In view of the high prices likely to be obtained for potatoes, a considerable amount of planting is now in full swing on the island. Mr. A. Bertram, who recently imported about 400 bags of seed potatoes, has, in conjunction with Mr. W. E. Bowling, sown about 60 acres; and Messrs. Parer and Biggs, who imported about 30 tons recently, have also been busy sowing. In addition, several smaller lots have been sown, including 6 acres by Mr. A. Bertram experimentally. The timbered country, although admirably adapted for potato-growing, would, but for the bad roads now contain some prospective crops. Cultivation of this portion of the island is seriously impeded by the lack of a landing on the east coast, which would minimise cartage and other expenses. The rainfall this year, although not anything like that of 1910, has been sufficient (with mild temperatures) to bring the grass well forward, and a bountiful stock season is anticipated. Some recently cleared and sown land on the east coast, adjacent to the Fraser River, is showing excellent growth, and the owners (Messrs. Zwar

and Hooper) find some difficulty in getting sufficient stock to consume the abundance of grass. Fat stock will from this date (August 25) be shipped to Tasmania. Some people also expect, in the event of a drought on the mainland, to make shipments of "fats" to Victoria. The various creeks of the island are very low in comparison with their usual depth at this time of the year. One hundred and eighty-four points of rain to the 24th is a marvellously low fall for King Island for August; about 7 inches is the usual total for this month. Everyone is hoping that Parliament will arrive at a satisfactory solution of the quarantine question. The large estate known as Yambacoona will be submitted to auction in Melbourne a week or two hence. If this estate is sold in dairying lots, and Parliament solves the quarantine riddle satisfactorily, the revenue of King Island should take a substantial leap forward.

Particulars of the rainfall for 1910 and 1911 (supplied by Mr. C. S. Heape) are given in the tabulated statement below:—

	Meteorological Station.	Surprise Bay.	Currie.		Yambacoona Station.	Cape Wickham.
	1910.	1910.	1911.	1910.	1910.	1910.
January .....	162	154	24	94	194	174
February .....	92	80	450	54	54	96
March .....	453	382	288	343	476	442
April .....	217	275	219	251	160	123
May .....	845	766	390	739	829	582
June .....	691	643	572	542	497	497
July .....	800	845	422	628	500	411
August .....	651	526	164	734	366	293
September .....	557	506	...	571	449	427
October .....	309	283	...	291	207	240
November .....	263	236	...	200	137	180
December .....	760	537	...	638	241	153
	5800	5233	2529	5085	4139	3588
						Points.
1910.—January 1 to 8 a.m. August 31 .....						3335
1911.—January 1 to 8 a.m. August 24 .....						2529
Difference .....						856

Mr. C. Richardson writes:—"During the past four or five years the departure from the normal winter conditions in these latitudes has, from some at present unknown cause, maintained a marked persistency; but in no winter season in the period mentioned has the disturbing agency been so pronounced as in the present year. The 'pull northward' upon the rain belt of the Southern Ocean during every winter since 1906 has occurred at various times of the season. In 1907 it occurred in the commencement of the winter season; this year it occurred after the middle of June. Whatever the cause—sun spots, terrestrial temperature, or otherwise—such an interruption to the general march eastwards of the rain elements is of vital importance to the well-being of pastoral and agricultural pursuits in Australia. Last year the northward pull upon the rain belt in question was not of sufficient strength to cause any marked difference from the normal distribution of rain; but the effects of the 'pull' this year is manifested in the King Island rainfall records, which to the 24th of August in the present year

show a difference of about  $7\frac{1}{2}$  inches less rainfall than for the same period of last year. Last year 3385 points were recorded to 31st August. This year 2529 points were registered up to August 24, with the result that creeks, &c., are attracting notice on account of their unusual lowness. As King Island lies right in the fairway of the Southern Ocean rain belt, it should record an average of about 40 inches rainfall per annum, and any rain elements that may be drifting eastward might naturally be expected to leave substantial traces of their passage in our gauges. This year, however, the curvature of the rain belt appears to have been of such an extensive nature that the elements have apparently been dissipated or absorbed in the sub-tropical region. The subject is one that by virtue of its newness does not at present find a place in meteorological science; but as time proceeds it should and will unquestionably do so, the phenomenon being of vital importance to Australasia. Dr. Geoffrey Duffield, B.Sc., who visited Australia a year or two ago with the object of inducing the Federal Government to establish a solar observatory, was much impressed with the data bearing upon the curvature of the Southern Ocean rain belt, and confirmed the writer's opinion that the latter will very probably find an important place in the study of solar physics when an Australian solar observatory is established.

**KINGSTON.**—Late autumn and early winter unusually wet, but weather has since been exceptionally mild, and there is every indication of an early spring. Crops in dry localities are well advanced, but are backward in the damp, low-lying places.

**MOOREVILLE ROAD.**—The sowing of early crops is just about finished. A larger area has been devoted to both oats and early potatoes this year. The weather has changed from cold and wet to warm and mild, and grass and young crops have thus been enabled to make a good start.

**NOOK.**—With nice showers and warm days cereal crops are growing very fast. Good progress is being made with potato-planting (the acreage being about the same as for last year), and a few farmers are trying early turnips.

**NORTH MOTTON.**—The weather right through the winter has been exceedingly mild. With the exception of a few sharp frosts late in July and early in August there has been no cold weather. The rainfall has not been excessive, though there were many wet days during the early part of winter. There is every indication of an early spring. There appears to be about the usual acreage of oats and potatoes going in, early varieties of the latter being more favoured than in previous years. The acreage devoted to oats and peas is perhaps greater than that of last year. These crops are well forward, thanks to the mildness of the weather and the absence of cold, harsh winds, which are sometimes prevalent about this time.

**PARKHAM.**—The almost unceasing rain has considerably retarded work in this district. Ploughing is pretty general; but sowing operations have scarcely been commenced. Rain fell on 22 days during the past three months.

**RAILTON.**—The weather during the past few months has been very showery, and consequently farm work is in arrears. The principal crops are oats, peas, and potatoes. Potato-planting, which in a few instances was commenced at the end of July, is now well forward, the early varieties being chiefly favoured. Fruit-trees look "promising" at present.

**STOODLEY.**—Early crops are well forward, and look well, owing to abundance of rain. The continued wet weather has retarded ploughing and the sowing of spring crops.

**ST. HELENS.**—Rain, 77 points fell on nine days; heavy dew, seven days; hail, two days; fog, one day; frost, seven days. Maximum temperature,  $66\cdot4$  degrees, on 12th August; minimum temperature,  $30\cdot3$  degrees, on 3rd and

27th August. An unprecedentedly warm August at this station, peach and plum trees being in full bloom early in the second week. Drought, however, beginning to tell, and rivers very low for this time of year. Rain has frequently threatened, but not fulfilled its promise. Alluvial mining much hampered by poor water-supply. Amongst farmers dairying will shortly commence, and a few have started already. The frosts have been very slight ones, and have not checked growth to any appreciable extent. Marked prevalence of westerly winds. Gales on 29th and 30th August severe.

ST. PATRICK'S RIVER AND MYRTLE BANK.—On 15 wet days in August 303 points of rain fell, the total since 1st January being 3965 points. Several frosts occurred during the month, the lowest temperature being 22 degrees Fah., on the 25th. On the whole the weather has been favourable for farming operations.



THE Jerusalem artichoke (*Helianthus tuberosus*, L.) is neither an artichoke, nor does it come from Jerusalem. It gets the name "artichoke" on account of the similarity of the taste of its tubers to the flower heads of the true Globe artichoke. The term "Jerusalem" indicates that the flowers follow the sun round from east to west. Artichokes are good feed for all kinds of stock.



## BOARDS OF AGRICULTURE.

THE following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	H. Bennell	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Cressy	James Anderson	Cressy
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
East Tamar	W. Carnie	Newnham
Elliott	L. H. Shepherd	Elliott
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Geeveston	F. Hyndes	Geeveston
Glengarry	W. Wheldon	Glengarry
Glen Huon	P. H. Young	Glen Huon
Glenorchy	Hon. W. Clifford	Glenorchy
Irish Town	E. L. Smith	Irish Town
Kettering	F. Hawker	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
King Island	A. Bertram	King Island
Lilydale	S. Wellington	Lilydale
Lovett	W. O. Gilbert	Lovett
Lymington South	T. Burnaby	Lymington
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marawah	E. Bonhôte	Marawah
Mt. Pleasant	B. B. Morrison	York Plains
Mt. Seymour	W. Wilson	Mt. Seymour
Mowbray	G. H. Boatwright	Smithton
Mooreville-road	W. White	C/o W. Spinks, Mooreville-road
New Ground	J. L. Thomas	Moriarty
North Motton	O. Waters	North Motton
Nook	J. H. Lyons	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgley	W. Morris	Ridgley
Scottsdale	F. F. Tucker	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
Sheffield	O. Ridley	Sheffield
South Preston	F. Tongs	South Preston
St. Helens	C. R. Bowling	St. Helens
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carins	Myrtle Bank
Sprent	A. Lee	Sprent
Staverton	T. Wootton	Staverton
St. Leonards	W. J. Figgis	St. Leonards
Stoodley	J. Leo	Stoodley
Stowport	J. G. Pearson	Round Hill, Burnie
South Springfield	J. Molphy	South Springfield

## BOARDS OF AGRICULTURE continued.

BOARD.	HON. SECRETARY.	ADDRESS.
Table Cape	H. J. Smith	Wynyard
Tyenna	F. M. Smith	Tyenna
Upper Mountain River	A. Griffiths	Grove
Wattle Grove	K. Lord	Wattle Grove (Lower)
West Tamar	H. Robinson	Frankford
Wilmot	D. E. Forbes	Wilmot
Yolla	D. T. Jones	Yolla

## Avoca, August 2.

**PRESENT.**—Messrs. J. Conway (Chairman), C. Davis, H. E. Malkin, W. Ayers, A. T. Rubenach, C. Rubenach, J. McCarthy, and H. Bennell (Hon. Secretary).

**NEW MEMBERS.**—Messrs. F. Cawthorn and E. J. Adams.

**IMMIGRATION.**—Messrs. Ayers, J. Rubenach, T. Badkin, and the Chairman were appointed a committee to deal with immigration.

**TRET ON POTATOES.**—This not being a potato district, it was decided that no action be taken in the matter.

**MEETINGS.**—The Chairman suggested that the dates of meetings of the different Branch Boards might be advertised in the "Gazette" for the benefit of all concerned. This Board meets on the first Wednesday in every month.

## Beulah, August 18.

**PRESENT.** Messrs. W. J. Richardson (Chairman), V. Richardson, J. Murphy, C. Kelly, E. J. Hodgkinson, W. T. Stephens, and A. G. Oliver.

**EMPLOYERS' FEDERATION.** Correspondence was read from the Secretary of the Tasmanian Employers' Federation. It was considered that the minimum subscription of £1 was too high, and should be reduced so that all landholders could subscribe to the fund.

**TRET ON POTATOES.**—On the motion of Mr. C. Kelly it was resolved, "That this meeting approves of the resolution passed by the New Ground Board."

**FORMALIN.**—A letter was received from Mr. D. Loane, referring to the use of formalin in treating potatoes for Irish blight. Members were of opinion that it would be well to give the remedy a trial.

**SEEDS.**—Advice was received from the Director with respect to the seeds sent to the Board for experimental purposes. The following were distributed among members present:—Strawberry, clover, *Chou moulrier*, *Phalaris commutata*, sugar-beet, soy beans, Rhodes' grass, and *Lotus major*.

**CARCASE PORK.**—It was decided that the Secretary bring under the notice of the Director the necessity for a trial shipment of carcase pork being sent to London, with a view to opening up a market for surplus pigs next season. It was considered that if a farmer could obtain 3d. per lb. for pork, it would pay to go in for pig-rearing.

## Carnarvon, August 5.

**PRESENT.**—Messrs. Eldridge (in the chair), J. P. Mathias, J. A. McGinniss, R. J. Stacey, G. Bellette, A. C. Mathias, H. Burden, W. Mawle, G. Wellard, J. McArthur, W. R. McGinniss, C. Trenham, E. A. Target, and D. B. Blackwood (Hon. Secretary).

**TRET ON POTATOES.**—Resolved, "That this Board is in sympathy with the New Ground Board in this matter."

**CANAL.**—Mr. Wellard referred to the matter of a deputation waiting on the Minister of Lands with regard to the Ralph's Bay Neck canal. Other

members also spoke of the benefit it would be to the Peninsula, as it would provide a smooth-water route and encourage fruit-growing—an industry for which the Peninsula is well suited. On the initiative of Mr. Target, the following resolution was carried:—"That this Board of Agriculture realizes the importance of the Ralph's Bay Neck canal, and wishes the deputation to the Minister every success."

**IMMIGRATION.**—The following were appointed a committee to deal with this subject:—Messrs. Tanner, Eldridge, Wellard, Bellette, E. A. Target, J. A. McGinniss, and the Secretary.

**FINANCIAL ASSISTANCE TO FARMERS.**—Mr. Stacey's motion on this subject was allowed to stand over until next meeting.

### Clarence, August 12.

**PRESENT.**—Hon. James Murdoch, M.L.C. (Chairman), Messrs. J. Hanslow, C. F. Percy, O. Chipman, P. W. Goodwin, J. Cotton, A. O. Green, S. Wellard, T. A. Tabart, J. O'May, J. Pearsall, S. Salmon, H. Jolliffe, E. P. Davies, H. Blyth, and R. A. Black (Hon. Secretary).

**NEW MEMBER.**—Mr. A. Allison.

**UNIFORM SIZE OF FRUIT-CASES.**—The Secretary said that the only matter arising out of the minutes of the previous meeting was some correspondence relating to the question of a standard fruit-case for the whole of the Commonwealth. It had been suggested that it should hold one imperial bushel of fruit. The Director of Agriculture (Mr. A. H. Benson) had written to the Minister for Agriculture for Victoria (Hon. G. Graham) inquiring as to what steps had been taken to carry out the resolution passed by the recent conference of Ministers for Agriculture affirming the desirableness of having a standard case. A reply was received from the Director of Agriculture for Victoria (Dr. Cameron), who stated that beyond the passing of the resolution no definite steps had been taken in the matter. Victoria, South Australia, and Tasmania had each passed measures providing for uniformity in size to suit their respective local requirements. The National Fruitgrowers' Association of Australasia would hold its annual conference in Brisbane in October next, when the departmental experts from the several States would, as usual, be present. He (Dr. Cameron) suggested that the enactment of legislation should be postponed until after that conference discussed the question, which was one that could not be satisfactorily dealt with in correspondence. The Chairman said that Victoria, South Australia, and Tasmania had become tired of waiting for the Commonwealth to take action in this matter, and had therefore passed the measures referred to by Dr. Cameron. It was most desirable to have uniformity in the size of these cases throughout the Commonwealth. At present Victoria could stop Tasmanian fruit packed in our size of cases from entering her ports. No doubt the outcome of the meeting of the National Fruitgrowers' Association which was to be held in Brisbane in October would be the appointment of a deputation to wait on the Federal authorities with reference to this question. Mr. A. O. Green asked if the Fruitgrowers' Association of Hobart fairly represented the opinions of the fruitgrowers of the island. The Chairman said he thought so, whereupon Mr. Green moved, "That this Board suggests that, in order that this very important question may be brought to a close, the Tasmanian Fruitgrowers' Association should agree upon a standard case, and that it should have a case constructed for the purpose of having it shown and recommended at the conference to be held in Brisbane, with the view of its being adopted as the model case for Australasia." The mover said that delegates from Tasmania, which was the pioneer fruitgrowing State, would be able to explain to the conference the advantages of such a case. It was much easier to make such an explanation when a model case was before the conference than when one

had to speak of measurements. Mr. E. P. Davies inquired if the uniform size that had been adopted by the Tasmanian growers had been found to be better adapted for stowing in the holds of steamers. The Chairman replied that it had. It was now possible to stow 24 cases in the cubic space allowed for a ton, whereas formerly only 23 cases could be stowed. Mr. C. F. Percy seconded the motion, and it was agreed to.

**WHITE WEED.**—Mr. Joseph Salmon, of Ringwood, Colebrook, wrote requesting the Board to urge upon the Government that the law should be altered, so that the administration of "The Noxious Weeds Act" should be entrusted to the police, under the superintendence of the Chief Inspector, instead of leaving it to the municipal councils. The municipal councils, he said, were not strict enough, and allowed the white weed and thistles to blossom in the crops. Some of the councils did nothing with regard to the white weed, notably the Sorell and Richmond Municipalities. The weed was allowed to spread on grass land used for sheep, whilst farmers in cultivated paddocks were required to suppress it. That was of no use, as the seeds got spread in various ways from the grass lands. The Secretary stated that the white weed had been proclaimed a noxious weed throughout the State since October, 1908, and it was incumbent on municipalities to take action. The Government had ample powers in compelling municipal councils to do their duty in this matter, and any person having the white weed growing on his land, and not effectually preventing it blossoming, was liable to a penalty not exceeding £20. The Act proceeded:—"And any person who removes, or causes to be removed, or knowingly sells or offers for sale, hay, grass seed, grain, or chaff containing the seed of Californian thistle, white weed, or other noxious weeds, shall be liable to a penalty of not less than £2, nor more than £25." The Chairman said he did not think the municipal councils would object to having the powers transferred to the central authority, but he did not think the Government was likely to take such a step unless gross neglect was shown. The Government had power now to institute proceedings if it liked in any case. The Secretary stated that the Government could take action if a municipal council were negligent in the matter. The Chairman said it was difficult sometimes to take action against a neighbour. In the Clarence Municipality the inspector seemed to be doing his work satisfactorily. [Mr. Green: And if the work were done by the Government the clean municipal districts would have to pay for the treatment of the dirty ones.] The Chairman said that if the occupiers of grass land were not required to keep the white weed down, as well as the farmers on cultivated paddocks, the seed of the weed would get on the wool of the sheep, and in other ways be distributed, as Mr. Salmon mentioned. It was hardly fair to come down on the agriculturists in the matter, and not also on the pastoralists, who might leave the weed blossoming on their grass lands. The agriculturists did more good for the country than the pastoralists. Mr. Wellard was of opinion that sheep would eat the white weed fast enough. Mr. S. Salmon said he believed it would be advantageous for the clean districts to share the cost of cleaning the dirty ones. In some districts there were hundreds of acres of the white weed. Mr. Cotton moved that the Board considered that the noxious weed difficulty was sufficiently dealt with under "The Noxious Weeds Act." Mr. S. N. Wellard seconded the motion. He considered that the white weed was not such a noxious one as some would make out, as he had grown some splendid potatoes and carrots amongst it. He would sooner deal with the white weed than the Californian thistle. Mr. O'May considered that the white weed should be kept down on pastoral as well as on cultivated lands. He got rid of a patch of it in two years by repeatedly working it out. Mr. Tabart said that he had a patch of it, and he got rid of it entirely in less than 12 months by keeping it down with the hoe, never letting the plants grow even to the surface of the ground. The motion was agreed to.

**TRET ON POTATOES.**—The New Ground Board of Agriculture (Latrobe district) wrote, seeking co-operation in putting an end to merchants deducting tret from bags of potatoes forwarded by growers. It was alleged that merchants deducted as much tret now from 15 bags to the ton as they did when there were only 10 bags to the ton. [The Secretary: "Tret" means rubbish, earth, or dirt in the bags of potatoes.] The Chairman said he thought it was wholly a matter between buyer and seller. Of course, if a buyer detected a lot of dirt or earth in the bags in a lot of potatoes, he took care to deduct something off the price in consequence. The Secretary said the rule at Devonport was to deduct 4 lb. per bag for earth in the bags in winter time, and 2 lb. in summer. It was resolved that the letter be received.

**GRASS SEED.**—Packets of *Chou moulrier*, Rhodes grass, *Phalaris communata*, and other seeds were received from the Director for distribution among farming members to experiment in the growth of the same; reports of results to be sent to the Department.

**BRANDING OF SHEEP.**—Mr. T. A. Tabart read the following paper:—"The notices of motion standing in my name I propose to discuss seriatim. My object is to bring under discussion subjects that are purely matters of profit and loss, and that wholly belong to stock and its by-products, viz., wool, skins, and hides, and as the motions are so intimately connected with the producer, I deemed it most important that those interested should have an opportunity of expressing their opinions and experiences, and, with myself, assist in advocating some method that will be a permanent all-round solution and benefit to producers who market fat stock—both sheep and cattle—for the shambles. The importance of the motions of which I have given notice must appeal to all members of the Clarence Board of Agriculture, and I am induced to think that the discussion raised by this Board may result in other Boards following in our wake. I will preface my remarks by saying that I have made full inquiry into the abuse of branding sheep with objectionable materials, and from my own personal experience and observation have no hesitation in condemning the present practice of tar-branding sheep. It must be apparent to any owner who disposes of stock so branded, particularly fat sheep, that the value per head must be affected to a lesser or greater extent, and that it is an absolute loss in money value to the vendor, because the trade, who are the final owners of the sheep, consider, when purchasing, that the various distinguishing marks made with tar means depreciation of one of their most profitable by-products (the wool). I have ascertained from reliable authorities that the loss in money value will reach from 3d. to 1s. per skin. As business men, the trade allow a margin for the loss occasioned by tar-branding, and therefore do not bid to the full value, so as to provide for this contingency. I have frequently urged the discontinuance of the objectionable practice of tar or paint being used for the branding of sheep. Some of the trade recognise these drawbacks, particularly when they fail to obtain the full value for butchers' sheepskins submitted to the hammer. There are other branding substances upon the market that are not deleterious to the wool, and which can be removed by scouring without injury to the staple, or being injurious for manufacturing purposes. The loss occasioned would not be wondered at if an inspection were made of fat sheep purchased by the trade in the sale-pens prior to removal; they would be found bedaubed with tar. This is done so as to distinguish between the ownership of sheep purchased prior to being mixed in one drove. I readily admit that there should be an ownership mark, which is indispensable as a matter of identification, but I emphatically say it should not be made of tar or paint, which so visibly depreciates the value of this commercial article. The latest figures that I have to guide me in making an approximate estimate of the losses that arise in this connection are those for 1910. These figures, I apprehend, will greatly

astonish the meeting, because of their magnitude, and it must not be overlooked that these losses are actually sustained by sheepowners, and also those engaged in producing fat sheep and lambs for the market. In 1910 I find that 105,129 fat sheep and lambs were slaughtered within the cities and suburbs of Hobart and Launceston, and as the average is between 8d. and 1s. per skin, the loss is 7½d., the annual loss therefore shown against owners from tar-branding is £3285. I consider that outside the cities of Hobart and Launceston and their suburbs there are approximately 87,334 persons, who would consume 140,170 sheep, the skins off which would be depreciated equally with those for slaughter in the cities, viz., 7½d. per skin. The loss, therefore, upon the skins, taking the basis of city skins, would amount to £4172. To analyse the subject of the slaughter of sheep further, I would fix for consumption on the farms and agricultural and pastoral establishments, calculated on the above basis, 70,086 sheep, or, in other words, that 43,666 persons would consume that number. The depreciation undoubtedly upon these skins would not exceed 4d. per skin, so that in money value it may be fairly estimated at £1168; therefore the loss in money value upon the skins of sheep slaughtered for consumption in the whole of the State for 12 months would be as follows:—

Butchers' sheep for Hobart and Launceston:	Skins, 105,129; rate of loss, 7½d.; value, £3285; population, 60,405.
Sheep for places outside Hobart and Launceston:	Skins, 140,172; rate of loss, 7½d.; value £4172; population, 87,334.
Sheep for farms and pastoral establishments:	Skins, 70,086; rate of loss, 4d.; value, £1168; population, 43,666.
Totals:	Skins, 315,387; value, £8625; population, 191,405.

There were in the State in 1910 1,734,761 sheep and lambs. Of this number 315,387 are accounted for by slaughter, and 262,867 sheep may fairly be written off for surplus stock being used for the purpose of trade and barter, which would, with the slaughtered sheep, represent one-third of the whole of the sheep stock in the State. The depreciation caused to the wool of these 262,867 sheep from tar and paint branding would, I believe, in the common course and avenues of trade, represent a loss of 4d. per skin, representing in money value £4381. This would leave the standing flock in the State for wool producing at 1,156,507 sheep, plus 262,867 sheep. In addition to the losses cited, I certainly believe that one-third of the 1,156,506 sheep, or 385,502 sheep, would be branded with paint, which would mean, at the rate of 2½d. per lb., a loss of £2612. This last calculation greatly increases the total loss, which I now sum up as follows:—

Butchers' sheep, Hobart and Launceston:	Skins, 105,129; rate of loss, 7½d.; value, £3285.
Sheep for places outside Hobart and Launceston:	Skins, 140,172; rate of loss, 7½d.; value £4172.
Sheep for farms and pastoral establishments:	Skins, 70,086; rate of loss, 4d.; value £1168.
Sheep used for traffic and barter purposes:	Skins, 262,867; rate of loss, 4d.; value, £4381.
Sheep (one-third of standing flock of 1,156,506):	Skins, 385,502; rate of loss, 2½d.; value £2612.
Totals	Skins, 963,756; value, £15,618.
Standing flock to account for balance of sheep in the State	777,005

1,734,761 skins.

Showing that my estimate is not an excessive one, I quote from the 'Wool Record' wherein a Bradford authority remarks that fleeces marked or branded

with tar or paint take longer to sort, as the end has to be clipped off, therefore shortening the length of staple, which means decreased value in the combing tops. The tarry staple ends so clipped are worth only 2½d. per lb., when wool costing, say, 12d. per lb. and upwards is so dealt with, and this fact accounts for a serious loss in the aggregate. I understand there is a new preparation that is said to make an indelible mark, and is not deleterious to the wool, which has stood a severe test in England, and been pronounced an improvement upon many branding substances upon the market. I have placed myself in communication with the authorities to get information on this point, and when received it may prove a practical solution of how to save money that under present conditions is lost to stockowners. I leave this important matter in the hands of the members of the Board for discussion with the hope that the ventilation of the subject will set producers thinking over their losses, and lead to their striving to suggest a remedy, which to my mind is the prohibition of the use of tar and paint for branding." [Mr. Green: The 2½d. per lb. would be on the wool? Mr. Tabart: Yes.] The Chairman said he was sure they were very grateful to Mr. Tabart for the trouble he had gone to in preparing such an able and informative paper; but he did not think the loss by the use of tar and paint by farmers was very great. He knew that some of the butchers at the saleyards had the sheep they bought marked with tar or red ochre, but as far as his knowledge went he did not know of a single farmer using pitch, paint, or tar, because of the damage to the fleece; they now used tattoo oil, or some other preparation of that sort, which did not damage the wool. In past times pitch was much used, he knew. So it was very hard on the farmer, after the sheep had passed out of his hands, for the butcher or his drover to use tar, paint, or pitch, and for the butcher, in consequence, to deduct the value of that deterioration from the price he gave for the sheep to the farmer. On his place he slaughtered about 200 sheep in the year, but he used nothing but tattoo oil, and he would have to inquire whether the local buyer of the skins deducted for deterioration by branding. If the dealer did, he should not do it. So he thought Mr. Tabart would require to modify his figures a little in regard to farmers branding with tar or paint. He thought the remedy was rather for the butchers to order their drovers, when putting on distinguishing marks, not to use tar, paint, or pitch, but instead tattoo oil or red ochre. Also, that instructions should be given at the Hobart and Launceston abattoirs to the same effect. What surprised him was why butchers permitted those deleterious substances to be used when tattoo oils answered just as well, and did no damage to the fleece. They must be very foolish in their own interest if thereby the value of the wool or the fleece was deteriorated to the extent of 2½d. per lb. He could hardly imagine their doing such an outrageous thing. [Voices: They don't care. They reckon on that, and deduct it from the prices.] Mr. D. Johnstone (woollen manufacturer) said he had come to the meeting to make a few observations from the manufacturer's point of view. When sheep were marked with tar, pitch, or paint farmers had no idea the trouble it gave the manufacturer to get those marks out; also, "curly pod" or burr, and those things deteriorated the value of the wool very greatly. The speaker exhibited samples of wool showing the bad state of the same through these causes. Those objectionable materials got carded all through the wool, and when the carded wool was being dyed, those things showed up. He did not think that Mr. Tabart had exaggerated the evil one bit. If the sample of wool he held in his hand had been free from tar marks and burr, it would have been worth 3d. per lb. more at the very least. [Mr. Wellard: Will tattoo oil affect the wool at all? Mr. Johnstone: No.] Mr. Green said it was these small things in farming that makes all the difference between profit and loss. He was sure Mr. Tabart's paper would be read

throughout the country with much interest. The Chairman remarked that, as to burr, farmers could not help that getting into the wool where the sheep fed on it. That means of deterioration the farmer often had to make allowance for; he could not help it. Mr. Cotton said he thought Mr. Tabart had earned the thanks of the Board for his able and exhaustive paper. The Government should get an Act to prohibit the use of tar, paint, and pitch in marking sheep. Mr. Salmon remarked that the use of tattoo oil was an immense improvement. Only on the previous day he had read in the "Mercury's" Yorkshire letter of how the manufacturers were complaining of foreign substances in the wool. The "screw" burr shown by Mr. Johnstone was picked up by the sheep in the autumn, and often their fleeces were covered with it, and it remained in the fleeces. He thought legislation might amend matters as to the material used in marking the sheep. Tar and paint were used at the sale-yards by the butchers' men. [Mr. Wellard: I never use anything but tattoo oil.] Mr. Hanslow said a good many used red ochre and oil. [Mr. H. Blyth: That makes paint.] Mr. Pearsall did not know of a single farmer using pitch, tar, or paint. He had seen only tattoo oil used. Mr. Green said he understood that the "Branding Act" was to be amended by Parliament this session, and suggested that steps should be taken to have inserted a clause prohibiting the use of those materials in marking sheep. He would move, "That, in the best interests of the country, the use of tar, paint, or pitch in marking sheep should be forbidden by law." The Chairman said he would have pleasure in seconding it. Mr. Wellard remarked that the butchers' men used these materials because they are handy. The Chairman said that the butchers were foolish to permit it, and asked why the unfortunate man on the land should be made to bear the loss by deterioration through the butchers' own actions. He could not understand the butchers allowing their men to use such deteriorating materials. [Mr. Green: If they don't know better, they should be taught.] The Chairman said that the butchers' men put the marks on after the sheep were bought for identification, and the difficulty was to prevent a man branding his own sheep as he liked. [Mr. Cotton: But, according to Mr. Tabart, their putting these abominable materials on the sheep reduces the value of the fleeces, and the butchers take that into account in bidding for the sheep they buy. The Chairman: Yes, according to Mr. Tabart, the farmer suffers to the extent of 7½d. per head in consequence.] Mr. Pearsall said he was in favour of Mr. Green's motion. The drovers used tar because they got it cheaper. Mr. Johnstone stated that tattoo oil would not be deleterious. Mr. Tabart, in replying to the discussion, said he travelled all over the country, among sheep, continually, and assured the meeting that the objectionable materials named, particularly tar and paint, were very frequently used. In saleyards he had seen sheep almost painted all over. Tar was used very much. Those materials not only deteriorated the value of the sheep on which they were put, but in droving them they rubbed it on to other sheep a good deal. The Chairman said he had had a conversation with Mr. E. H. Webster on the subject of the paper just read by Mr. Tabart, and he said a great deal of good would be done by Mr. Tabart having called attention to the evil. The motion was unanimously agreed to.

**CATTLE-BRANDING.**—Mr. Tabart intimated that he had prepared a paper, with illustrations, on the enormous losses incurred, in the aggregate, by the improper branding of cattle and flaying of hides, and, in view of the Branding Act Amendment Bill to be shortly considered by Parliament, he would like the Board to discuss that subject at an early date. It was resolved to adjourn the meeting for a fortnight for this purpose.



**Cressy, August 14.**

**PRESENT.**—Messrs. G. Gill (in the chair), J. Shipp, J. H. Summers, S. Brumby, W. Wheeler, and J. Anderson (Hon. Secretary).

**SEEDS.**—Samples of seeds for distribution among members were received from the Director of Agriculture, who, on the motion of Mr. S. Brumby, was accorded a hearty vote of thanks for same.

**Frankford, August 14.**

**TRET ON POTATOES.**—Resolved, "That this Board supports the New Ground Board in its protest against the deduction for tret on consignments of potatoes."

**IMMIGRATION.**—Correspondence was read from the Immigration and Intelligence Branch of the Department, and Messrs. C. I. Knight and M. de H. Ponsonby were appointed a committee to attend to the matter.

**SEEDS.**—A vote of thanks was passed to the Director of Agriculture for a parcel of seeds sent for distribution among members.

**POTATO BLIGHT.**—The Chairman, who attended the Launceston conference in June last, stated that spraying was not a safeguard against potato blight, and that in future the potato would be sold on its merits.

**Glengarry, August 21.**

**PRESENT.**—Messrs. J. K. Stewart, G. Stewart, O. Morrison, D. Lamont, W. Gowans, N. D. Wivel, — Evans, and W. Wheldon (Hon. Secretary).

**GRASSES.**—Mr. Evans, a visitor from Western Australia, was introduced by Mr. W. Gowans, and during a discussion on some grass seeds sent by the Director gave members some valuable information.

**IMMIGRATION.**—It was decided to assist the Department in gaining information in this connection, and Messrs. W. Gowans, D. Lamont, G. Stewart, W. Wheldon, and N. D. Wivel were appointed a committee to deal with the matter.

**THE SOY BEAN.**—It was decided that the Editor be asked to state in the next issue of the "Gazette" the purposes for which soy beans are grown and used. [The soy bean is one of the legumes from China. It is cultivated in most tropical countries as a pulse, and also on account of the rich oil obtained from the seeds, and the valuable cake. The beans, which are not very often used by themselves as cattle food, are somewhat richer than ordinary English beans. They are a good fodder for milch cattle.—ED.]

**Kettering, August 18.**

**PRESENT.**—Messrs. G. A. Harrison (in the chair), R. Creighton, W. J. Baldwin, J. Flakemore, H. New, S. Sargison, H. Grattidge, and Capt. Folder.

**ACCOUNTS.**—The Treasurer's report and balance-sheet were read and adopted.

**CONFERENCE.**—Mr. Creighton gave an account of the proceedings at the Launceston conference.

**ORCHARD PESTS.**—The chart of orchard pests sent by the Director was greatly admired, and left in the hands of Mr. Pybus, who promised to post it up at the local post-office.

**SEEDS.**—Samples of seeds sent by the Director were distributed among members.

**NEW MEMBERS.**—Messrs. G. Smith and J. Bradley.

### Kingston, August 15.

**PRESENT.**—Messrs. H. Henwood (Chairman), R. O. Hazell, B. J. Pearsall, A. Dixon, W. Hazell, E. J. Lucas, W. D. Maddock, W. Wells, H. Page, and J. R. Green (Hon. Secretary).

**IMMIGRATION.**—Members agreed that there were plenty of openings for men with or without capital, provided that the latter had a capacity and inclination for work. Taking the questions in the Department's circular in numerical order, the replies were:—

- (1) Farming in the district is mixed—agriculture, fruit, dairying, early vegetables, potatoes, and small fruits.
- (2) Average price of land ready for cultivation, £20 per acre; good unimproved orchard land, £3 per acre; orchard land cleared, planted, and fenced, £40 per acre; orchards in full bearing, £100 per acre.
- (3) Carrying capacity—Cleared land, four sheep per acre; bush land, one sheep to 2 acres. The Kingston district is not a sheep country; the holdings are small, and cultivation intense. Prospects are good for men with practical knowledge, the district having a great advantage over others on account of its proximity to a profitable market, the mildness of its climate, the cheap carriage by water, good roads, and its special suitability for the production of early vegetables, and the growth of all the products of market gardens.

**TRET ON POTATOES.**—In response to the resolution passed by the New Ground Board relating to the tret deducted by merchants from potatoes sold in bags, it was resolved that although the growers of this district were not affected—all potatoes being sent to market in cases—this Board is in sympathy with the North-West Coast growers in the matter.

**DELEGATE'S REPORT.**—Mr. D. W. Maddock, delegate to the Launceston conference, gave a most interesting report (full of good practical information) of the proceedings at the conference, and was accorded a unanimous vote of thanks for the time and trouble taken to place before the members such a mass of valuable information.

**SEEDS.**—Mr. W. D. Maddock agreed to form experimental plots for the growth of the different seeds obtained from the Agricultural Department. Several other members also took samples of the seeds suited to their respective localities. Members agreed that the Agricultural Department under the present management was doing good work for the farmers, and assisting them in every possible way.

**PACKING FRUIT.**—It was decided that at the next meeting the question of an improved method of packing fruit should be discussed.

### Marrawah, August 9.

**PRESENT.**—Messrs. Wells, Moore, Wilson, E. Dixon, T. Marshall, McCarthy, A. Greene, Parsons, and E. Bonhote (Hon. Secretary).

**CHAIRMAN.**—In the absence of the Chairman, Mr. G. Moore was voted to the chair.

**ELECTION OF OFFICERS.**—Chairman, Mr. Moore; Secretary, Mr. E. Bonhote.

**SUBSCRIPTION.**—The annual subscription was fixed at 2s., payable in advance.

**DELEGATE'S REPORT.**—Mr. Moore gave a resume of the proceedings at the Launceston conference, referring in indignant terms to the treatment meted out to delegates who happened to be private factory proprietors. It was resolved that the complaint be referred to the Director for explanation.

**QUARANTINE.**—A resolution was passed favouring the adoption of the proposed quarantine regulations as outlined by the Director at the Launceston conference.

**Mooreville Road, August 4.**

**PRESENT.**—Messrs. W. Spinks (Chairman), T. Redman, A. J. Spinks, J. Connolly, A. Pease, G. E. Russell, W. Russell, A. J. Redman, and W. White (Hon. Secretary).

**CORRESPONDENCE.**—Correspondence was read from the Ridgley Board, giving an invitation to its annual meeting (which was thankfully accepted), and from the Director of Agriculture *in re* chart of fruit pests and diseases.

**IMMIGRATION.**—A sub-committee (to meet on August 7) was appointed to collect information on this subject.

**TRET ON POTATOES.**—Resolved, on the motion of Mr. W. Spinks, "That this Board is in favour of the motion passed by the New Ground Board of Agriculture."

**SEEDS.**—A parcel of seeds was received from the Director of Agriculture, and will be distributed at next meeting.

**Nook, August 30.**

**PRESENT.**—Messrs. J. Shea (Chairman), J. Scott, G. Hamilton, H. Keep, Jun., and J. H. Lyons (Hon. Secretary).

**CERTIFICATES OF COMPETENCY TO FARRIERS.**—After considerable discussion on this subject, it was resolved, on the motion of Mr. Hamilton, "That in the opinion of this Board it is desirable that farriers should have a thorough knowledge of shoeing all classes of horses; also that a veterinary surgeon should pass an examination before being allowed to claim the title certificated farrier."

**INFORMATION FOR IMMIGRANTS.**—In this district there are about 300 acres of land available for orchards, and there is a good area planted with fruit trees. There are also some 500 acres suitable for mixed farming. A special committee, consisting of Messrs. G. Hamilton, J. Shea, J. Scott, H. Keep, Jun., and J. H. Lyons, has been appointed to supply information to the Intelligence Branch of the Department.

**Railton, August 14.**

**PRESENT.**—Messrs. H. Priest (Chairman), Dean, Tane, P. H. White, Fraser, Maynard, G. Hoodlass, and J. Blenkhorn (Hon. Secretary).

**CORRESPONDENCE.**—Correspondence was read from the Department, Messrs. Cuming, Smith, and Co. (*in re* formalin), and the Immigration and Intelligence Branch. A committee, consisting of Messrs. H. Priest, P. H. White, and the Secretary, was appointed to deal with the correspondence.

**SOIL-ANALYSIS.**—The Board thought the Department very dilatory. On March 21 a sample of soil was sent by the Board from Mr. D. Duff's farm for analysis. Up to the present it had not been received, the excuse being that they were renovating the laboratory. Mr. Duff was anxious to get the analysis, so as to use the right kind of manure on the land.

**TRET ON POTATOES.**—The New Ground resolution on the question of tret on potatoes was supported.

**PIGS.**—The discussion on pigs for bacon was allowed to stand over until next meeting.

**FLAX.**—A report on public meetings held at Sunnyside and Railton on the flaxgrowing industry was considered very satisfactory. To deal with this question a committee was formed, consisting of Messrs. H. Priest (Chairman), A. Maynard, A. C. Dean, P. H. White, and J. Blenkhorn. Mr. Dean was asked to get full particulars from Sheffield, including the cost of registering a small co-operative company.

**LIME AS A PLANT FOOD.**—The Secretary read a paper on "Lime as a Plant Food," as follows:—"I have been asked a question as to whether I approve of Mr. Benson's ideas of recommending farmers and fruitgrowers to use

ground limestone for adding lime to the soil. My reply to this is, 'It is too costly, and its action too slow, for the Tasmanian farmer and fruitgrower.' Mr. Benson says you must apply 3 tons very finely ground at a cost of about 8s. per ton, or 24s. per acre. In America they have used ground limestone with some success, but in all my travels in Australia, New Zealand, and the United Kingdom I have not come across one farmer using ground stone. Mr. Benson lays great stress on the action of lime improving the soil only, overlooking the main point, that lime is essentially a plant food. He also says our soils contain sufficient lime. This is not the case. On most of our farms lime is almost exhausted from the soil by continuous cropping. My main point is that lime, roach or caustic, is a plant food, and must be applied to the soil to farm successfully. Morton says: 'The great topic of discussion, both among practical and scientific farmers, at the beginning of the nineteenth century was the part which lime played in relation to the soil, and to those crops which were so much benefited by its application. Some writers contended that lime was not of itself a necessary part of the food of plants, and that it was only useful as a stimulant in converting inert vegetable matter into such food. Others, again, arguing from the action of lime on worn-out soils, came to the conclusion that not only did it convert inert substances into available material for supporting vegetation, but that it was in itself a necessary and essential constituent in the food of plants. Modern analysis of the ashes of plants and the composition of soils has proved the latter theory to be the correct one.' Morton further says: 'If we remember that the ash of pea-straw, which forms 73 per cent. of the whole crop, contains no less than 40 per cent. of lime, and peas themselves 5 to 6 per cent. of this element, we can readily understand why peas should delight in calcareous soils, and why liming should be attended with beneficial results.' Mr. Thos. Brydone, New Zealand, in his paper on 'Lime,' says: 'It has been proved by eminent chemists that lime is part of the direct mineral food of plants, and the quantity absorbed by the following crops is estimated to be—For wheat, 50 bushels per acre, 25 lb. lime; oats, 50 bushels per acre, 22 lb. lime; barley, 40 bushels per acre, 17 lb. lime; turnips, 20 tons per acre, 118 lb. lime; potatoes, 8 tons per acre, 40 lb. lime; red clover, 2 tons per acre, 77 lb. lime; rye grass, 2 tons per acre, 30 lb. lime. Now, if this direct food were the only advantage, the use of lime (not limestone) might be doubted, but it fortunately possesses the following qualities:—(1) It is of the greatest benefit to all soils, and is injurious to none; (2) lime is good for burning up and destroying the excess of vegetable matter when the accumulations of such are an encumbrance to the soil, as in the case of swampy land (of course draining must precede liming to obtain full benefit); (3) heavy lands are made lighter, and its action is just the reverse on light soils. On soils containing much mineral and vegetable matter it has a wonderful effect, decomposing and turning the decaying matter into useful plant food in a very short time—it has been computed that with 2 tons per acre on this class of land an effect is obtained in five months that would require five years in ordinary working; (4) it releases from stubborn clays the potash, magnesia, and phosphates which they contain, thus rendering these ingredients available for the use of the plants; (5) lime also sweetens sour soil by neutralising the free acids which it contains—it is for this purpose the very best application which farmers can employ in seed-time after a wet winter; (6) lime in slaking usually imparts a great amount of heat, and rapidly warms the cold soil; (7) it was discovered about 10 years ago by the great German agricultural chemist Hellriegel that lime is just the base which is best fitted for the growth of the nitrogen microbe, the functions of this wonderful microbe being to take the nitrogen from the atmosphere and use it for its own purposes, and then transfer it into the substance of the plants on which it grows—such

plants are those of the leguminous order, which include peas, beans, vetches, lucerne, all the clovers, and indeed all plants which have a flower like the pea-blossom; (8) Messrs. Sutton and Sons, the well-known seedsmen, assert that a dusting of lime, when the leaves of the young turnips are damp with rain or dew, will entirely protect them from the fly; (9) sorrel, which is a sure sign of sour, impoverished land, is acted upon magically by lime. Leaflet No. 170, British Board of Agriculture, says: 'Lime is an essential plant food, and without it soils cannot produce good crops. Soils are generally considered to be deficient in lime when they contain less than from '5 to 1 per cent.; some soils, however, which are provided with a considerable amount of organic matter, may respond to lime, although they contain much more than these amounts.' Mr. H. Wallace in his lecture on lime says: 'Some doubt has been expressed as to the value of lime as plant food; but if they looked at the analysis of farm crops they would find that the entire plant of the potato would contain about 20 per cent. of lime, turnips 48 per cent., and require lime for their growth, and rape also thrives splendidly after lime. found in some of their farm crops.' Referring again to New Zealand, there are about 550 farmers in Otago and Southland who regularly use caustic lime, and not one ground limestone. The manager of the Edendale estate says: 'We have thoroughly proved in practice that turnips and clovers require lime for their growth, and rape also thrives splendidly after lime. We had a 180-acre paddock this last summer sown with rape, turnips, and Italian rye-grass—simply as a catch-crop—90 acres fattened 3000 lambs after weaning, besides carrying 2000 stores for six weeks. The other 90 acres carried 350 bullocks for six weeks, and 160 dry cows for longer. The weather was wet nearly all the time, which wasted a lot of feed. The stock ate the rye-grass first, then the rape, and finished with the turnips.' I think I have said enough at present, and this paper will show plainly that our farmers want the best of burnt lime on the land, and not ground limestone. We must not forget that there is a great difference in the quality of burnt lime, and it varies so much that some lime is worth 100 per cent. more than others.' The Chairman said that he had heard the Director say at the Sheffield conference that lime was not a plant food, but the Secretary's paper showed that experts on lime agreed that it was. Mr. Dean said he was with the Director and the Scottish Commissioners on a round trip through Barrington and Sheffield, and the commissioners pointed out many farms in the basaltic country where lime was wanted in some of the paddocks. Mr. Benson, as far as he knew, had not objected to what they said. Mr. Geo. Hoodlass said last season his pea crop failed almost altogether. He got about 20 bushels from 6 acres, which was a great loss. He questioned whether it was not caused owing to a deficiency of lime in the soil.

### Rubicon, August 11 and 26.

*August 11.*

**PRESENT.**—Messrs. T. Radford (Chairman), M. Russell, W. Heagar, T. Flower, H. E. Walker, and M. Walker.

**NEW FODDER.**—The Skinless oats seed proved very disappointing, only a little of that sown coming to anything.

**MANURES.**—In connection with this subject, the question was asked whether the Government would purchase and supply manures to farmers at cost price.

*August 26.*

**PRESENT.**—Messrs. W. Skirving, W. McNair, T. O'Neill, J. Shelton, T. Flowers, H. E. Walker, S. Burgess, H. Slater, C. Slater (Hon. Secretary), and one visitor.

**CHAIRMAN.**—In the absence of Mr. Radford, Mr. T. Flower was voted to the chair.

**CORRESPONDENCE.**—The Secretary read several letters from the Director containing information on seeds and how to grow them, and on many other matters of interest to the Board, which was much appreciated by those present.

**WAX MATCHES.**—Resolved, on the motion of Mr. Skirving, "That the Director be asked to request Boards of Agriculture to move in the direction of getting their several representatives in Parliament to bring in a Bill prohibiting the sale of wax matches, which in this State caused great loss by fire owing to their explosive nature."

**SOILS.**—It was decided that the Director be asked to allow the Agricultural Chemist to visit the district, and give residents some information as to the quality of the land therein and the most suitable manures for treating it.

**SEEDS.**—Parcels of the following seeds were received from the Department, and distributed among members:—Strawberry clover, *Chou moullier*, *Phalaris commutata*, sugar-beet, soy bean, *Paspalum dilatatum*, Rhodes' grass, and *Lotus major*.

**TOBACCO REFUSE.**—Several members promised to give tobacco refuse a trial as manure for pea blight.

### Stoodley, August 8.

**PRESENT.**—Messrs. Bannon (Chairman), P. Leo, J. Powlett, T. Tyler, W. Scanlon, Sen., W. Scanlon, Jun., J. Collins, G. Nolan, and J. Leo (Hon. Secretary).

**IMMIGRATION.**—Messrs. Bannon and Leo were appointed a sub-committee to supply the information desired by the Department.

**FLAX.**—A letter was read from the Railton Board inviting the farmers of Stoodley to co-operate in a meeting for the promotion of flaxgrowing in and about Railton. Messrs. Scanlon and Powlett were deputed to attend as representatives of the Stoodley Board.

**MISCELLANEOUS.**—Mr. Scanlon supplied information anent the Co-operative Society of Farmers and Producers, and Mr. T. Tyler gave the meeting the benefit of his experience as delegate to the late conference in Launceston.

### St. Helens, August 29.

**PRESENT.**—Rev. J. A. Travers (chair), Messrs. C. Miller, W. Thompson, J. W. Thompson, J. H. Briggs, T. Haley, Dr. Smellie, W. P. Kirwan, and C. R. Bowling (Hon. Secretary).

**NEW MEMBER.**—Mr. J. G. Walker, Scamander.

**FARRIERS.**—Resolved, "That this Board is quite in accord with the desirability of farriers passing an examination as suggested in the Director of Agriculture's letter of 23rd instant."

**SEEDS.**—Packets of seeds sent by the Agricultural Department were distributed among members, and a lengthy discussion took place as to the most suitable places for sowing same.

**INSPECTION OF ORCHARDS.**—Resolved, "That the Secretary write and ask the Council to have the existing orchards inspected by an expert, with the view of ascertaining what steps are necessary to clear the neighbourhood of codlin moth, and give the newly-planted orchards a fair chance."

**IMMIGRATION.**—It was decided that the report drawn up by the sub-committee be adopted and forwarded to the Agricultural Department.

**ANALYSIS OF SOIL.**—It was resolved to apply to the Department for the services of the Agricultural Expert to analyse the soil in the district.

## St. Marys, August 19.

**PRESENT.**—Messrs. Napier (chair), Buttsworth, W. King, W. McHugo, J. Speers, F. Salter, Dr. Harrison, and Col. Legge (Hon. Secretary).

**NEW MEMBER.**—Mr. W. Davern.

**THE DAIRY INDUSTRY.**—The Secretary referred to the work done at the conference to which the Board had sent him as a delegate. It was a very representative one, and several important matters had been discussed. Arising out of Mr. Benson's exhaustive paper on the dairy industry there had been a full discussion, and the motion for a relaxation of the quarantine regulations in accordance with the proposal put forward in the Director's paper was carried by a large majority. He had himself voted against it. As a pastoralist he had until recently disapproved of the regulations being altered, but of late he had begun to think that the introduction of dairy cattle, if strictly carried out under the full restrictions proposed by the Director, and confined to the dairy districts on the North-West Coast, which were isolated from all the large herds of the pastoralists, there would be little danger of any outbreak of disease spreading. Furthermore, the treatment of pleuro-pneumonia had become, under the light of modern science, a more successful operation than was formerly the case, and its isolation was likewise an easier matter than formerly. The agitation had been purely confined to the dairymen of the North-West Coast. The Chairman spoke on the desirability of not relaxing the regulations. He said Tasmania was a clean country, and nothing should be done which was likely to bring in disease. There were excellent cows and heifers to be had in the State; but some people appeared to think that anything from the mainland must be better than what we had ourselves. The Secretary, in reply, said he agreed with the speaker as to the qualities of our dairy cattle, and instanced the case of a breeder (not far from St. Marys) who advertised excellent shorthorn Ayrshire heifers in calf for £5. This breeder was written to by a farmer in the North-Eastern district to the effect that the price was too much, and he would be willing to give £4! The breeder in question was unable to sell his heifers owing to want of any demand. Mr. King concurred in what had been said by the Chairman, and said we could breed our own dairy cattle. Others spoke to the same effect. Dr. Harrison, replying to a query of Mr. King's, said that the 90 days' quarantine was insufficient as a safeguard; that "carriers," which meant what are styled "lungers" (cattle that had had the disease and were apparently cured), might develop symptoms again, and introduce the disease into the country. He himself favoured the introduction of bulls, not heifers, if there were to be any relaxation of quarantine. He did not suppose that any heifers introduced from the mainland would be any better than those which could, he understood from the discussion, be had in Tasmania. He instanced a case of introduction of dairy cattle into South Australia from Victoria, which cost in Melbourne £10, and when landed turned out to be inferior to local cattle. He also thought that the introduction of dairy heifers into Tasmania would prove expensive, but that bull calves would be proportionately cheaper. The Chairman remarked that the Government might very well pay the quarantine expenses, and the Secretary added that this step had been recommended by the council of the Stockowners' and Farmers' Association at its recent meeting at Hobart. It had also been recommended by Dr. Willmot. At the close of the discussion, the following resolution, moved by Mr. McHugo, was carried:—"That this Board is not in favour of any relaxation of the quarantine regulations."

**VETERINARY.**—Dr. Harrison alluded to the valuable service of Dr. Willmot as Government Veterinary Surgeon and Bacteriologist. Dr. Willmot was retiring, and he thought that the Board should record its appreciation of his services. The Secretary remarked that he understood the retirement was

only contemplated, and the Board might defer their resolution until Dr. Willmot's decision was known.

**TRET ON POTATOES.**—After discussion the Secretary moved the following resolution, which was carried:—"That this Board is in sympathy with the New Ground Board with regard to the matter."

**IMMIGRATION.**—Mr. Evans' memo. on immigration and district statistics was left in the hands of the Secretary to deal with.

### St. Patrick's River and Myrtle Bank, August 7 and September 4.

*August 7.*

**PRESENT.**—Messes. S. Skemp, S. Teece, W. Richards, L. Warren, F. Warren, J. Whitcombe, A. Alexander, C. Faulkner, and R. Skemp.

**CHAIRMAN.**—In the absence of Mr. Peck, Mr. F. Warren was voted to the chair.

**BUTTER.**—A discussion took place on the proposed abolition of the practice of colouring butter. Members were unanimously of opinion that the proposal was a mischievous interference with business, seeing that the colouring matter could not be regarded as an adulteration when it added nothing to the weight; nor was it harmful to health in any way, being added solely to please the eye, and chiefly at a time of the year when grass was short and the butter paler than usual.

**NEW MEMBERS.**—Messes. P. G. and A. Nelson.

*September 4.*

**PRESENT.**—Messes. R. Skemp (Vice-Chairman), J. Whitcombe, S. Teece, Freiboth, A. Alexander, R. Tole, V. Tole, W. Imlach, P. G. Nelson, A. Nelson, A. Freiboth, and W. A. Carins (Hon. Secretary).

**NEW MEMBER.**—Mr. A. Freiboth.

**POTATOES.**—Mr. S. Teece exhibited three specimens of the Up-to-date potato; they were showing second growth, and weighed 3 lb. each.

**SEEDS.**—A parcel of grass, clover, and other seeds, donated by the Director for experimental purposes, were distributed among members, who undertook to report on the growth of same. The Board was impressed with the value of the opportunity thus presented for practically testing a variety of new seeds. It was suggested that prizes be offered at the next produce show held by the Board for the best collection raised from the seeds sent by the Director.

**QUALIFIED FARRIERS.**—Resolved, "That this Board approves the granting of certificates, and replies in the affirmative to the three queries addressed to it by the Director of Agriculture."

### Tyenna.

**PRESENT.**—Messes. R. Marriott, Sen. (Chairman), F. Brown, A. Marriott, B. Burnley, J. Burnley, Arch. Marriott, A. Sharpe, and F. M. Smith (Hon. Secretary).

**IMMIGRATION.**—Messes. Facy, F. Brown, R. Marriott, F. E. Abbott, A. Sharpe, J. Burnley, and F. M. Smith were appointed a committee to supply the information required by the Department.

**TRET ON POTATOES.**—The following motion, moved by Mr. F. Brown, was carried:—"That this Board protests against the action of merchants in making a charge for tret in connection with consignments of potatoes." The mover suggested that merchants should examine the potatoes, and make a charge for tret only in those cases where the tubers proved to be dirty.

**WEATHER-GAUGE.**—It was decided that application be made to the Department for a weather-gauge for use in the district.



**CONFERENCE.**—Mr. J. Burnley gave a resume of the proceedings at the Launceston conference, and was accorded a vote of thanks for his attendance on behalf of the Board.

**EXPORT OF POTATOES.**—It was resolved that information be sought from the Department as to the conditions required to be observed in exporting potatoes to Western Australia.

**BRACKEN FERN.**—Members were of opinion that the Department should conduct experiments with the object of determining the best means of eradicating bracken fern.

**STUD BULL.**—On the initiative of Mr. A. Sharpe it was decided that the Department be requested to procure an Ayrshire bull for the district.

**NEW MEMBER.**—Mr. A. Quarrell.

### Upper Mountain River, September 2.

**PRESENT.**—Messrs. G. S. Parsons (Chairman), L. Schmidt, W. H. Schmidt, C. Schmidt, E. H. Schmidt, A. Schmidt, Jun., J. Stevenson, W. Salter, A. Griffiths (Hon. Secretary), and one visitor.

**EXPLANATORY.**—The Secretary explained that the August meeting had lapsed for want of a quorum, this being largely due to the prevalence of influenza in the district.

**NEW MEMBER.**—Mr. W. Salter.

**TRET ON POTATOES.**—Resolved, "That, as this is not a potato-exporting district, this Board is not prepared to enter a protest against the deductions made for foreign matter in consignments of potatoes."

**CHART.**—The Secretary was instructed to thank the Director for the chart of fruit pests and diseases, which was ordered to be hung on the wall of the meeting-room.

**FARRIERS' CERTIFICATES.**—After discussion it was resolved, "That this Board considers it highly necessary that farriers should have a thorough knowledge of the correct methods of shoeing horses, and that certificates of competency should be issued to all farriers who have passed an examination by a qualified veterinary surgeon."

**EXHIBITION OF EGGS AT LAUNCESTON SHOW.**—It was resolved that the Director be notified that at least one exhibit will be forwarded by members of this Board.

**WAX MATCHES.**—Resolved, "That this Board does not approve of the prohibition of the sale of wax matches in this State."

**IMMIGRATION.**—The following were appointed a sub-committee to collect information for the Immigration Intelligence Branch:—Messrs. G. S. Parsons, J. Stevenson, and A. Griffiths.

### Wattle Grove, September 5.

**PRESENT.**—Messrs. E. Baldwin (Chairman), H. W. Smith, A. S. Atkins, W. Schultz, Jun., C. E. Cawthorn, T. K. Wilson, J. T. Martin, H. Batge, H. Baldwin, K. Lord (Hon. Secretary), and three visitors.

**FRUIT SHIPMENT.**—Letters were read from Messrs. H. Jones & Co., Limited, and W. D. Peacock & Co., Limited, *in re s.s. "Papanui."* The terms of the letters were such as to give but little hope of compensation for damaged fruit. A lengthy discussion took place on this subject.

**IMMIGRATION.**—A circular was read from the Agricultural Department asking for information for intending immigrants. Messrs. J. T. Martin, H. W. Smith, and K. Lord were appointed a sub-committee to report thereon.

**FARRIERS.**—A circular *in re* the advisability of granting certificates to farriers was read. After discussion it was agreed that as one certificate would most likely cover a shop, it would not prevent an incompetent man shoeing, and it would have a tendency to raise the charge. It was suggested

that the Department organise classes which farriers could attend and learn to treat all classes of hoofs.

**WAX MATCHES.**—*In re* the motion of the Rubicon Board, it was thought the wax match was too useful to be dispensed with.

**FRUIT-HANDLING.**—Resolved, "That steps should be taken to prevent the rough handling of fruit by lumpers on the wharves."

## TAMAR FARMERS' AND FRUITGROWERS' ASSOCIATION.

August 14.

**ATTENDANCE.**—There were upwards of 40 present. The President (Mr. Traill) presided.

**IMMIGRATION.**—The secretary of the Immigration League wrote with reference to the Association assisting in placing labourers out of work who might seek employment through the agency of the recently-established Government labour bureau. It was resolved that the Association assist as far as possible from time to time as occasion arises, members to advise the secretaries or council clerk at Beaconsfield of any vacancies coming under their notice. The same officer wrote stating that advice had been received that four young men desirous of getting employment on an orchard were expected on the "Everton Grange," and if any openings in the work were offering they wished to be notified. Members agreed to enquire, and notify the Secretary if anything came under their notice. Another matter submitted was a request to be furnished with particulars as to cost of land in its various stages, produce grown, its carrying capacity, and any information which might assist the Department in placing immigrants on arrival. It was resolved, on the motion of Messrs. Gowans and Murray, "That Branch Boards be asked to furnish the information in districts where they exist, and in other centres, members of the Association to confer and compile statistics asked for."

**COLOURING MATTER IN BUTTER.**—The proposal to eliminate colouring matter in butter was not favoured, and the following resolution was unanimously adopted:—"That the decision to prohibit colouring matter in butter does not meet with the approval of this meeting, inasmuch as it is not universal throughout the Commonwealth, and will therefore act prejudicially against the sale of Tasmanian butter."

**BITTER PIT.**—A paper on "Bitter Pit and the Fruit Industry" was read by the Hon. Secretary (Mr. H. Robinson), from which the following extracts are made:—"My own opinion is that it is due to a constitutional disorder of tree, brought about primarily by improper methods of pruning, also manuring, cultivation, &c. It is natural for fruit trees to produce fruit without any pruning whatever. The main objects of pruning, cultivating, and manuring are to improve the quality of the fruit, regulate the annual crop as much as possible, maintain a steady growth of wood, and production of fruit spurs, and provide sunlight and air to all parts of the tree, &c.; but in carrying out these methods we should be careful not to interfere too much with the natural order of things, or else we are bound to upset the equilibrium of the tree, and thus it would be unable to discharge its proper functions in a natural manner. The difficulty is to know when to hit the happy medium, and do the right thing at the right time. Science has helped, and is still helping us very materially in both agricultural and horticultural work, and producers should encourage its researches whenever it is likely to prove beneficial to them. Every producer should be an experimentalist in a small way, and watch results of certain lines of action; by this means, coupled with reading up-to-date literature bearing upon his

particular work, he will gradually increase his store of knowledge, and benefit according to his ability to apply it. When the revival of fruit-growing took place in the north some few years ago, we were advised to cut back and thoroughly spray our trees. Through lack of proper methods of pruning, spraying, and cultivating, they had become debilitated, and needed rejuvenating. We used the knife and saw freely, sprayed for mussel scale and black spot, thoroughly cultivated, and applied farmyard manure, with the result that we got a vigorous growth of wood and very little fruit, much of which was affected by bitter pit to such an extent that it was unmarketable. This unsatisfactory state of things continued for a few years, and was, to say the least, most discouraging. In order to reduce the vigour of the trees I was advised to summer prune. I did so, following the practice for three summers. This no doubt steadied the flow of sap, and tended to promote the production of fruit spurs, but I may say at once that whilst summer thinning amongst vigorous trees is a good thing, it needs to be very carefully carried out, and no one should attempt it unless he has more than a superficial knowledge of the subject. As the trees settled down to bearing regularly there was less bitter pit, and although the trees maintained a good growth of wood, they did not carry that healthy foliage which a grower likes to see in his trees. We were applying farmyard manure, using red oil spray in winter and the Bordeaux mixture in spring. We therefore came to the conclusion that the former was not a complete manure, and the trees were needing a tonic. The following spring we applied a light dressing of a complete orchard fertiliser. There was a marked difference both in the appearance of the trees, the crop, and quality, and practically no bitter pit. We were satisfied that the trees had been supplied with a more complete plant food, or, to use a term frequently applied in the feeding of dairy cattle, they were receiving a balanced ration, and were thus able to discharge their proper functions, producing a fruit perfect in quality and having strength to throw off various fungus diseases. We have no codlin moth in our district, and have therefore had no occasion to use arsenate of lead, so that in our case it was impossible to attribute the presence of 'pit' to its use. I know that in isolated cases trees that have never been pruned have been known to produce 'pitted' fruit, so that it is palpable that injudicious pruning, although a prolific cause, is not altogether responsible for the trouble. It would probably be found, if an analysis of the soil were made in such a case, it was carrying an overplus of plant food, such as to cause a vigorous growth of wood, and thus the tree was unable to carry out the duties assigned to it by nature, viz., the production of fruit whilst maintaining a steady growth of wood. To demonstrate how pruning may cause bitter pit, I will give two illustrations. In our orchard we had two trees of the Bismarck variety. One I cut fairly hard, and the other I allowed to run up and produce laterals, merely thinning out as occasion required. On the former the fruit was large and unsightly, and not fit for consumption owing to being so badly affected with 'bitter pit'; whilst on the other tree the 'pit' was conspicuous by its absence, and the fruit was a nice marketable size. The Rhode Island Greening is another vigorous grower, which has frequently shown much bitter pit. Since, however, I have allowed the trees to carry more laterals there has been practically none, whereas previously there would be quite 25 per cent. of the fruit affected. Very frequently it has been found that bitter pit develops after storing, especially if the fruit becomes at all heated. This I have noticed particularly with the Bismarcks referred to above. We kept some this season rather late, but no pit was showing. In my own district there is a gentleman, thoroughly versed in fruit-culture, and a student in every sense of the term, who claims that he can so prune a tree that almost every fruit will develop bitter pit, and so satisfied am I that he holds correct views on this matter that I would

like to see them put to the practical test, and think that representations to that effect should be made to Mr. McAlpine. He is quite prepared to undertake to eradicate bitter pit from any orchard if allowed to prune it for a number of years, as occasion may require—say, from two to four—the orchard to be treated according to his instructions during that time, he to be remunerated for his labour at a reasonable, ordinary rate by the orchardist, and to receive a bonus from the Government at the expiration of the time stipulated for the experiment to be carried out if successful. He will be prepared to furnish proof of his ability to carry out this work. I may say that he was very diffident about putting himself forward in any way, but I was able to persuade him to allow me to introduce this proposal to your notice, and as I think it is a pity that the services of one of proved ability should be lost to the State in the interests of such a growing and important industry, I hope this meeting will ask for this offer to be given effect to. To summarise my remarks, my experience goes to show that bitter pit may be caused by incorrect methods of pruning, thus causing an excessive flow of sap, which the tree is unable to assimilate in a natural manner; by the injudicious use of fertilisers, thereby promoting a similar result to the foregoing; by the want of a complete fertiliser, which can only be obtained by experiment—a costly way sometimes—or by an analysis of the soil.” The President considered it an excellent paper, and thought the recommendations contained therein should be given effect to. He complimented the Secretary, and thought, in view of the growing importance of the industry, they would be fully justified in endorsing the proposals. Mr. J. White said that pruning had nothing to do with it, and instanced Rome Beauty, which, no matter how hard it was cut, never showed any pit in the apple. The Secretary said he knew some varieties were immune from it. Each tree must be pruned according to its characteristics; no hard and fast rule could be laid down. Mr. Murray said his experience was that after a few years, when the tree was formed and settled into bearing, the trouble disappeared. On the motion of Messrs. Kerrison and Atkinson, it was decided that the recommendations be endorsed, and the Government be asked, through the Director of Agriculture, to give effect to them, and that a copy of the paper be forwarded to Mr. McAlpine.

**CO-OPERATION.**—A paper on “Co-operation, Concentration, and General Development” was read, and the following extracts are given:—“The proposal of the Scottsdale people to establish a port at Bridport and have railway connection therewith was a factor in suggesting to my mind the need for more concentration in our efforts at development. The desirability of the State having only a few shipping ports with the best possible means available for loading and unloading, receiving and distributing produce, must appeal to all sections of the community, and more especially to those who have to contribute largely to the interest on the capital outlay and the expenses involved in keeping them in an efficient state. It is upwards of 20 years ago that the then Government built an expensive line of railway to Scottsdale to enable the settlers there to market their produce, not only in Launceston, but by shipping from the latter port to oversea markets, and it seems to me that as a matter of policy the Government should, before constructing another line, which must rob the present of much of its revenue, rather reduce the rates on produce on the existing line to encourage producers in the north-eastern districts to make greater efforts at production, and thus ensure, in conjunction with other centres which have their outlet on the Tamar, such shipping facilities as the increased production would warrant. It seems to me that to create a large number of ports in the State is only adding unnecessary burdens on the people. With our sparse population we should confine our attention to establishing a few good ports, and give every

reasonable facility for the conveyance of produce thereto. Shipping companies will not care to trade with ports only offering limited cargo, and I have it on good authority that the production in the north-eastern districts has not been sufficient in the past to supply the requirements for the mining districts, and supplies had to be drawn from Launceston. It is hardly likely, then, that the production of these districts would be sufficient for some time to come to warrant regular calls of interstate vessels. To my mind, the position as it presents itself to me affords a splendid opportunity for co-operation on a comprehensive scale, and I should very much like to see the question discussed in every producing centre which ships from the Tamar, for there is no reason whatever why one of the strongest co-operative associations of its kind in the Commonwealth should not soon be established. I would not confine it to one particular line of produce, but to everything. The headquarters should be in Launceston, with branches in the various districts, and I see no reason why, if the present shareholders in the Tasmanian Produce and Cool Storage Company were agreeable, the share capital of that company should not be increased, so that the business could be extended to deal with all produce from the districts indicated. Cool storage would be necessary for all perishable products, and particularly if an export trade in pork and poultry could be established. I am aware that this proposition is one which should not be lightly dealt with, and I support the suggestion which has been made on several occasions that our Government should send a commission to Denmark to collect all information possible bearing upon this and farming generally, for the benefit of our agriculturists, and with a view to stimulating development on lines in keeping with the State's adaptability for this particular industry. I also think that if a similar commission visited California and other leading fruit centres in America this industry could also be placed on a much better footing. The question of a deep-water port and improving the Tamar is one which has been discussed in the press—I might say *ad nauseam*. I am only a layman, and am not going to offer any suggestions myself as to where the former should be established, merely confining myself to the statement that the nearer it is to the Heads the better it will be for the future prosperity of Northern Tasmania. Beauty Point has been selected as the temporary deep-water port, and a large sum of money has been expended in providing for the proper berthing of large ocean vessels; thus the foundation of a deep-water port has been laid, and if all circumstances are favourable for its retention, why should we have a duplication of expense? To attempt to bring the large ocean liners any distance up the river is courting disaster, and if the port is established near the Heads the fruit from Launceston and the river jetties can be lightered down at a minimum cost. The further the port is up the river the greater the insurance premiums, and the fruitgrower will have to pay. Reverting again to the primary object of this paper, viz., co-operation amongst the producers, I would remind you that the principle of co-operation was affirmed by the conference held in Launceston last June with some enthusiasm. It is a splendid subject to enlarge upon, and so easy to carry resolutions favouring this or any other project. I always notice that the difficulty lies in giving effect to these resolutions. The wish was expressed at that conference that certain resolutions adopted would not be pigeon-holed, as similar ones had been in the past. Let the producers show their earnestness and faith in what they advocate by combining forces, take advantage of the opportunity, and form an association which cannot fail to command the respect of the trading and consuming community. The day of the individualist is gone; all sections of the community are combining excepting the producer, who is a distrustful individual, and prefers to paddle his own canoe, with the inevitable result that it takes him all his time to keep his chin above water-mark. It would be a good thing if a meeting could be arranged for in Launceston of repre-

representatives from all districts interested in the co-operative proposal, presided over by the Director of Agriculture, so that a line of action might be decided upon." Mr. Gowans moved, and Mr. Hill seconded, "That a copy be sent to the press for publication." Some discussion ensued on the co-operative proposal. Mr. W. Gowans and Mr. Stewart Murray thought that district co-operative associations would be better than one large association. The Secretary explained that time would not allow him to enter more fully into explaining his idea, but he wished to see every district have its branch, with a centre in Launceston. Three departments could be created, viz., fruit, general produce, and dairy. His object was to create thought and promote discussion, and he would like to see a meeting of representatives from every district convened in Launceston to discuss the matter. Mr. E. V. Knight, secretary of the Northern Fruitgrowers' Association, who was present by invitation, explained that a company had been nominally formed in Launceston to deal with the fruit industry, and thought it was very probable that if district associations were formed that body would favour the movement, and a national association could be formed of members from the district associations to discuss matters of general interest. He spoke of the splendid success attained in America by organisation, and said he was expecting complete information on the working of several important institutions. He considered the Tamar and northern districts offered exceptional facilities for forming a large association, to be worked on a comprehensive scale. He referred to the paper as an excellent one, and suggested that he should call a meeting in Launceston, as suggested therein. On the motion of Messrs. Gowans and Tyson, the suggestion was adopted. It was unanimously decided that the Government be asked, through the Director of Agriculture, to give consideration to the proposal to seek information, as suggested, by a commission.

**STUD STOCK.**—The following resolution was carried after some discussion:— "That the Government be requested, through the Director of Agriculture, to give effect to the resolution passed at a recent representative farmers' conference at Sheffield, that all horses kept for sire purposes should be certified sound by a Government veterinary surgeon, in order that a high constitutional standard may be maintained, and that the service be limited to 60 mares." The foregoing was proposed by Mr. Tyson, and seconded by Mr. T. J. Connelly, and agreed to unanimously.

**TRET ON POTATOES.**—A resolution was submitted from the New Ground Branch Board of Agriculture dealing with the excessive tret charged by merchants on potatoes. They deducted as much per bag now as formerly, when larger bags were in use. The Secretary was instructed to say that members had not experienced this, but would co-operate with them in any effort made to combat unfair trading.

**CONCERT.**—The executive committee agreed to hold a concert to raise funds on the evening of the same day on which the annual meeting was to be held in September, the Chairman and Mr. Murray to confer as to a suitable date.

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## METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING AUGUST, 1911 AND 1910.

Station.	1911.	Wet Days.	1910.	Average.
<b>NORTHERN.</b>				
Marrawah ... ..	295	15	608	544
Cape Grim ... ..	249	15	485	413
Smithton ... ..	275	20	—	—
Sunny Hills ... ..	372	18	771	—
Irish Town ... ..	311	24	749	—
Black River ... ..	268	15	557	438
Stanley ... ..	267	22	615	349
Flowerdale ... ..	—	—	766	—
Flowerdale Upper ...	360	14	810	521
Yolla ... ..	272	23	997	827
Wynyard ... ..	232	15	616	—
Burnie ... ..	240	13	528	410
Ridgley ... ..	270	16	913	—
Ulverstone ... ..	191	10	515	358
Kindred ... ..	158	12	644	—
Devonport ... ..	200	16	418	389
Latrobe ... ..	—	—	409	446
Northdown ... ..	155	8	331	302
Beaconsfield ... ..	188	8	546	—
Low Head ... ..	127	12	327	253
Black Bluff ... ..	421	18	1670	—
Moina ... ..	270	20	1088	—
Central Castra ... ..	230	11	816	591
Wilmot ... ..	219	14	691	—
Gawler ... ..	—	—	672	527
Sheffield ... ..	184	12	558	—
Deloraine ... ..	103	6	431	403
Caveside ... ..	179	12	579	—
Cressy ... ..	101	12	317	215
Longford ... ..	106	13	367	234
Westbury ... ..	133	11	498	311
Westbury State School	—	—	461	—
Carrick ... ..	134	15	325	—
Launceston ... ..	129	9	—	281
Glengarry ... ..	176	12	661	467
Frankford ... ..	239	13	707	463
Exeter ... ..	158	13	484	—
Lilydale ... ..	172	12	622	429
St. Patrick's River ...	241	14	967	—
Springfield ... ..	362	28	1069	695
Springfield Scuth ...	—	—	1024	—
Scottsdale ... ..	264	15	744	422
Bransholm ... ..	263	11	885	—
Ringarooma ... ..	308	14	1094	1094
<b>WEST COAST—MOUNTAIN REGION.</b>				
Whale Head ... ..	—	—	557	—
Mt. Balfour ... ..	—	—	1210	—
Magnet ... ..	461	17	1393	—
Waratah ... ..	*614	—	1508	929
Que ... ..	441	18	—	—
Tullah ... ..	499	16	—	—
Renison Bell ... ..	562	19	—	—
Mt. Read ... ..	987	19	1385	1062
Chester ... ..	538	22	—	—

\* Telegraphic only.

## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Dundas ... ..	575	18	—	—
Zeehan ... ..	661	24	1787	977
Mt. Lyell ... ..	798	21	1832	1031
Queenstown ... ..	664	20	1593	—
Strahan ... ..	445	18	1295	660
Cape Sorell ... ..	301	20	830	609
Pillinger ... ..	526	19	1131	—
CENTRAL PLATEAU.				
Great Lake ... ..	—	—	—	316
Circle ... ..	—	—	538	—
Roscarboro ... ..	—	—	503	—
Clarence ... ..	281	12	884	—
Bronte ... ..	107	14	514	—
Steppes ... ..	71	8	247	—
McGuire's Marsh ... ..	93	9	265	—
Woods' Quoin ... ..	—	—	179	—
Interlaken ... ..	72	9	190	194
Dog's Head ... ..	86	10	203	—
DERWENT VALLEY.				
Glenmark ... ..	—	—	467	—
Strickland ... ..	—	—	460	—
Bashan ... ..	—	—	527	259
Osterley ... ..	110	8	301	—
Bothwell ... ..	73	12	140	144
Cleveland ... ..	93	9	519	—
Hamilton ... ..	87	15	230	139
Ellendale ... ..	169	15	735	338
Glenora ... ..	78	10	252	199
Belmont ... ..	—	—	177	137
Clarendon ... ..	59	7	209	148
New Norfolk ... ..	80	9	230	159
Uxbridge ... ..	100	9	388	300
Lachlan ... ..	70	7	276	206
SOUTH-EASTERN.				
South Bruné ... ..	143	14	247	362
Adventure Bay ... ..	152	12	351	—
Southport ... ..	*205	—	286	332
Lunnawanna ... ..	108	4	155	—
Port Esperance ... ..	—	—	295	252
Port Cygnet ... ..	113	13	216	—
Petchey's Bay ... ..	119	11	267	—
Middleton, Channel ... ..	130	10	239	—
Kettering ... ..	118	12	325	—
Franklin ... ..	106	5	—	311
Kingston ... ..	99	12	—	—
Mt. Nelson ... ..	154	8	113	195
Mt. Wellington (Gap) ... ..	268	—	381	284
The Springs ... ..	251	18	398	442
Hobart Observatory ... ..	130	14	167	181
Hobart Botanical Gardens ... ..	114	11	144	158
Hobart Waterworks ... ..	—	—	251	207
Glenorchy ... ..	—	—	232	163
New Town ... ..	—	—	—	200
Bellerive ... ..	134	12	98	111
Lindisfarne ... ..	—	—	95	—
Rokeby ... ..	*86	—	53	131
Sandford ... ..	81	6	56	156
Premaydena ... ..	122	5	117	206

\*Telegraphic only.



## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Carnarvon ... ..	152	10	230	363
Sorell ... ..	92	12	70	154
Cambridge ... ..	78	6	68	136
Craigow ... ..	—	—	68	—
Richmond ... ..	105	10	100	150
Brighton ... ..	75	10	164	107
Tea Tree ... ..	89	7	125	—
Bagdad ... ..	81	7	202	171
Broadmarsh ... ..	74	7	218	—
Kempton ... ..	80	12	138	141
<b>MIDLAND.</b>				
Spring Hill ... ..	88	8	123	112
Jericho ... ..	85	8	88	—
Mt. Seymour ... ..	83	15	114	160
Oatlands ... ..	69	21	119	157
Bow Hill ... ..	91	10	124	—
Andover ... ..	—	—	65	127
Woodbury ... ..	46	7	106	—
Beaufront (Ross) ... ..	55	4	154	141
Bendeemer ... ..	64	10	371	303
Glen Connell ... ..	—	—	254	224
Campbell Town ... ..	54	9	194	161
Hanleth ... ..	84	5	231	182
<b>EAST COAST.</b>				
Kellevie ... ..	—	—	103	—
Buckland ... ..	80	12	64	—
Triabunna ... ..	120	5	80	119
Louisville ... ..	125	14	—	—
Swansea ... ..	130	15	67	191
Riversdale ... ..	108	9	67	106
Cranbrook ... ..	99	7	70	99
Lake Leake ... ..	126	10	239	252
Ormley ... ..	70	10	161	193
Fingal ... ..	—	—	146	223
Cullenswood ... ..	76	9	204	314
St. Marys ... ..	110	6	240	—
Tower Hill ... ..	—	—	351	—
Mathinna ... ..	100	7	369	325
Scamander ... ..	70	6	166	159
St. Helens ... ..	77	9	260	264
Gould's Country ... ..	115	9	731	516
Lottah ... ..	241	23	1134	644
Eddystone Point ... ..	127	17	520	269
Boobyalla ... ..	120	13	404	—
<b>KING ISLAND.</b>				
Cape Wickham ... ..	278	23	293	—
Yambacoon ... ..	—	—	386	296
Currie Harbour ... ..	208	22	734	305
Monk Breton ... ..	—	—	651	—
Surprise Bay ... ..	—	—	526	—
The Chalet ... ..	255	18	655	—
<b>FLINDERS ISLAND.</b>				
Thule ... ..	—	—	263	244
White Mark ... ..	211	10	256	—
<b>OTHER ISLANDS.</b>				
Kent Group ... ..	—	—	278	—
Goose Island ... ..	99	7	273	214
Cape Barren Island ... ..	154	13	256	—
Swan Island ... ..	157	12	321	—
Maatsuyker Island ... ..	—	—	342	388

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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

The "Gazette" is sent free to all members of Boards of Agriculture. Any member not receiving a copy should communicate with the office at Hobart.

Correspondents are requested to send in matter not later than the 5th instant.



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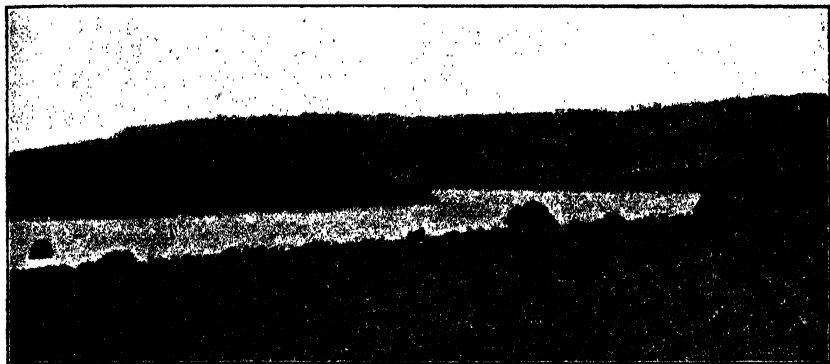
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# The Agricultural Gazette

THE JOURNAL OF THE AGRICULTURAL DEPARTMENT,  
TASMANIA.

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## GARDEN NOTES FOR NOVEMBER.

By J. OSBORNE, JUN., Horticultural Instructor.

### FLOWER GARDEN.

**D**URING this month all annuals raised in boxes or pans, and pricked out in September and the early portion of October, should be ready to plant. As the glory of the flower garden is chiefly due to the annuals, every care should be taken to ensure good planting in well-prepared beds. Where not already made up the beds should be heavily manured, deeply dug, and allowed to remain in the rough for a few days. This will cause the crust to dry and allow the air to get into the soil. After a few days (should there be no rain) a good watering may be given, after which when the surface is sufficiently dry the beds may be raked down and marked out for planting. All the plants should be put in against a line, so that something like order may be observed. In the borders a line is not required, the plants being put out in neat beds of various designs, a few inches separating them—just enough to allow of full development without crowding. Remember that the plants live only one season, and have to crowd a lot of growth into their short existence. Phloxes, asters, marigolds, stocks, larkspurs, sweet peas, salpiglossis, linum, petunias, cosmos, and such should be massed in beds in order to get the best results. In all cases give a copious watering, using a can with a fine rose. If the sun is very hot shade with a few boughs till the plants become established. Keep a sharp look-out for



snails, earwigs, &c. An inspection in the evening after dark will be found profitable. Where the lobelia borders have grown strongly a few cuttings should be taken and placed around the rim of a large pot containing a light, sandy compost. These will serve for borders, and will flower late in the summer. A good planting of gladioli may now be made, and the main bed of dahlias put out in a well-prepared bed. Weeds must be kept in check, and the soil stirred as often as possible to encourage growth. Chrysanthemums that have been rooted from cuttings may now be planted permanently in a deeply-dug bed that has received a liberal dressing of well-decayed stable manure. Violet borders must now be attended to, and runners not required cut out. New plantations should be cared for, water being supplied liberally in very dry weather. Pelargoniums for bedding out may be planted, choosing the warmest and driest situations. Tie in the early sweet peas, and take care not to allow them to run to seed, or the flowering season will be very short. The rose should be at its best during this month. Keep a sharp look-out for aphids, and if troubled with the pest, spray with a mixture of tobacco or phenyle at a strength of 1 pint to 60 pints of water. Soft soap (1 lb. to 4 gallons of water) is also a very efficacious remedy. Where the oidium of fire-blight is present a dressing with flowers-of-sulphur in the evening or early morning will give relief. Keep all beds free of weeds. Put a few cuttings of early-flowering shrubs into pots, using a loamy compost with some sharp sand worked in; place the pots in a sheltered place, where the evaporation is not too great, and water carefully. Salvias for bedding out may be brought out, and carefully hardened for planting in December. Keep carnations tied in, removing old and useless flowers. All herbaceous plants that are inclined to grow tall should also be carefully tied in. During dry weather water freely.

#### KITCHEN GARDEN.

Take care of the main crops, which should be in a forward state of development, using the hoe frequently. Hill-up early potatoes, that is, potatoes intended for use about the end of December. The work of putting out late ones may be continued. Sow French beans, Yorkshire Hero peas, radish, turnip, spinach, cabbage, cauliflower, and lettuce. Where good beds are available plant cauliflower and cabbage (also lettuce) for summer use. If the weather be dry, these plants will be improved by puddling, *i.e.*, dipping them in a mixture of water and clay of the consistency of cream before planting. Tomato plants may still be planted. Give a little shade till they are well rooted again, and keep a sharp lookout for insects. Water freely during dry weather. Where early peas and potatoes, &c., are taken off, the beds should be manured and dug deeply, in order to be ready for next month's planting. Rhubarb beds, where the stalks are plentiful, should receive liberal applications of liquid manure—first watering with fresh, clean water. Asparagus beds in profit also. Strawberries should now be ripening, and care must be taken to keep the fruit clean by placing fresh, short straw

among the plants. Keep the beds free from weeds. Tie in all loose raspberry canes, and loosen the soil between the lines with the hoe. Where borders are available a sowing of parsley for late summer use should be made. Thin out the beetroot beds, keep a lookout for earwigs, woodlice, &c., among the gooseberries and currant bushes. Where the insects are troublesome a series of sprayings with phenyle at a strength of 1 in 60 will render the fruit and foliage distasteful to them. During dry weather water freely, and keep the hoe going all the time.

#### GREENHOUSE.

Sow seeds of cineraria, primula, chinesis, and *Primula obconica grandiflora*, cyclamen, calceolaria. Put in cuttings of tuberous begonia in a light, sandy compost, the cuttings being taken off the bulb when about 2 inches long. Be very careful in applying moisture, as very little is required till the rooting takes place. Place the pots in an airy position. Pot up seedling coleus that are well forward, and place them where light is abundant. Cyclamen, when flowering is past, may be put outside to harden. Pelargoniums should now be at their best, and will require light and air in plenty. A little liquid manure twice a week (after an application of fresh water) will benefit them immensely. All tender plants should be examined for aphids, thrips, &c., as many are subject to the attacks of these pests. A dressing of phenyle at a strength of 1 pint in 60 pints of water (applied with a syringe) will keep them in check. This direction applies to nearly the whole of the plants usually found in the greenhouse. Ventilate freely, and give shade during the hottest portion of the day. Do not neglect the watering, especially in the case of hard-wooded plants, such as azalea, &c. Syringe freely morning and evening. Keep the floor of the house well moistened by putting down a few bucketfuls of water occasionally.

#### WEATHER AND CROPS.

**BARRINGTON.**—The winter has been a mild one and the rainfall moderate. Oats (Algerian) give promise of good returns. Most farmers sowed the Giant White variety in August, during which month the weather was very dry and favourable. With the increased area under crop there should be some good yields. The acreage under potatoes is smaller than that of last year. In most instances farmers have finished planting, it being generally believed that early crops are less affected by blight than the later ones. One thing is certain: given a wet year, with muggy weather, and Irish blight will be seen in its worst form. In which case farmers in this district will have no tubers for sale, for the seed potatoes planted have not been treated in any way. The pea crop promises to occupy a fair area this year.

**ST. HELENS.**—A chilly and cloudy September. Vegetation made little advance since August. Rainfall (which was generally steady rather than heavy) most beneficial to farmers and miners, and has removed all apprehensions for the coming spring. Rivers at winter level. Outlook very promising for the crops, but some sunny weather now desirable. Frosts cut back potato crops which had been too rapidly advanced by the warm weather of August. Latter part of month very stormy. Rainfall, 530 points.

**TABLE CAPE.**—August was a very dry month. Early potatoes are well up, and are plainly showing in the rows. All early crops are looking remarkably well.

## POULTRY: PRICES OF EGGS.

By R. J. TERRY. Poultry and Pig Expert.

**D**URING "show week" at Launceston I gathered from a few farmers from outlying districts that they were not obtaining a fair price for their eggs. Yet there is not any necessity for low returns, and according to present arrangements fair prices will rule during the season. Storekeepers who collect eggs, and farmers who have a good number, want to keep in touch with the market, and study where to send during certain seasons of the year. Arrangements have been made in Launceston to dispose of surplus eggs, and I believe I am perfectly correct in saying that the Launceston market cannot be overstocked this season if really fresh and well-packed eggs are forwarded to that centre. Remember, the more eggs that leave the State the higher the market price in the State.

### COMMERCIAL PACKING OF EGGS.

Under this heading I mean to speak about the packing of eggs by rail or shipment in large quantities, not the dozen or so of eggs used for setting. A cheap and handy package is a sound kerosene case. If it wants any extra nails, put them in before packing the eggs. If chaff is used it can be of very poor quality; in fact, it is better so. But it should not be in any way damp or musty, as the eggs will absorb the bad odour. Pack three dozen eggs in a layer, and seven layers deep—twenty one dozen in all—then on top of the last layer of chaff place sufficient straw to come slightly above the top edges of the box. When the lid is nailed on, the straw will be compressed, and the contents of the box will not be shaken. Storekeepers and others who collect or confine eggs will be repaid by adopting this method. They will have full prices returned for their goods, as merchants want reliable lines, well packed, which will carry well. Bear in mind that the merchant cannot at the present time choose just what he desires.

### EGGS FOR EXHIBITION.

I desire to take this opportunity of thanking members of the Boards of Agriculture, farmers, and poultryfanciers for the splendid response to my appeal for collections of eggs. Special credit is due to the Exton Agricultural Board for the display made by its members. They were runners up in white eggs for the Government certificate and third in browns, and they sent three times the number of any other Board. Mr. H. R. Taylor, of Elphin-road, secured the Government certificate for the best dozen of brown eggs. They had good thick shells, nice colour and shape, and were as like one another as peas in a pod. Mr. W. T. Stephens was second with a nice dozen of good quality; but three eggs were not quite the same tint as the other nine. In whites, Mr. Wells (East Launceston Poultry-yards) was first, with a dozen eggs which were

practically perfect, and was followed by the Exton Board of Agriculture, which was unfortunate in meeting the winner. As showing the interest taken in this exhibit, Mr. Pybus, of Devonport, sent a valuable sitting of his Brown Leghorns rather than miss Devonport Poultry Society being represented. The great change in egg-production in this State during the last three years is shown by the fact that Mr. Bain, Secretary to Launceston Agricultural Society, informed me that the Society for some few years gave a £1 prize for the best dozen eggs, but could not secure entries. And yet at the late exhibition the poultrybreeders were content to show for practically the honour, and to help the industry along! I am given to understand that it is probable that next year the Society will again award the prize referred to, several members being much impressed by the recent display. Many of the eggs will be sent to the Hobart show.

### SEED POTATOES AND IRISH BLIGHT.

THE following interesting communication on the above subject has been forwarded to the Hon. the Premier by the Tasmanian representative in London (Hon. Sir John McCall):—

Sir,—I have the honour to inform you, for the information of the Agricultural Department, that I have been making enquiries in Great Britain and Ireland with a view to ascertaining whether or not it might be possible to obtain seed potatoes which would fulfil the requirements of the Commonwealth Government under the "Quarantine Act." I regret, however, to state that neither the Board of Agriculture and Fisheries of Great Britain nor the Department of Agriculture for Ireland can undertake to guarantee any potatoes grown in the parts of the United Kingdom under their jurisdiction as free from blight. The Secretary of the Department for Ireland states that it is not practicable by means of a superficial examination to ascertain definitely whether certain tubers are affected or not with the disease. In fact, potatoes which are apparently free from blight when being packed for export may show signs of a disease in the course of transit, and accordingly be condemned on arrival at the port of landing.

I should like to point out that although potato blight has existed in the United Kingdom for a very long time, there has been practically no diminution of the acreage under this crop. In 1910 Great Britain had 539,684 acres under potatoes, giving an output of 3,477,139 tons; or 6·44 tons per acre. Ireland in the same year had 592,985 acres, with a total output of 2,870,827 tons; an average of 4·84 tons per acre. The total figures for the United Kingdom (viz. 1,132,669 acres, yielding 6,347,966 tons; or an average of 5·60 tons per acre) show that, notwithstanding the prevalence of blight and other potato diseases, there is still a large area under cultivation, and that by means of proper spraying and treatment the farmers in the United Kingdom are able to obtain a fair output.—I have, &c.,

JOHN MCCALL, Agent-General.

## PREPARATION OF WOOL: FROM THE PADDOCK TO THE SALE-ROOMS.

By THOMAS A. TABART.

(A Paper read before the Clarence Board of Agriculture.)

THE time is approaching when the usual seasonal activity will be in evidence upon pastoral properties, with the troubles and anxieties pertaining to sheep-shearing, wool-classing, packing, and forwarding to the sale-rooms, with the hopes and disappointments in the variations of market fluctuations, to be followed by the crucial test of how the wool clip submitted for buyers' inspection and valuation has been prepared to meet the market.

It is at this time that the woolgrower realises that in many of the wool clips submitted for sale owners have not treated their wool in such a manner as to command the attention of buyers. The yearly revenue derived from wool should be strictly guarded. Many careful and thinking owners are fully alive to the importance and benefit pertaining to the thorough scientific sorting of wool.

The times are changed from when growers of wool did not sort their clips. Bellies, locks, pieces were all rolled up together regardless of daggs and dirt inside the valuable parts of the fleece in a haphazard manner, perhaps, by sheer good luck, to meet a paying market. Not so at the present time; experience has taught the careful Tasmanian grower that sorting and classing of wool is tantamount to an increased source of revenue, as the clips so treated command the attention and satisfaction of buyers; and the enhanced value of the wool is a tangible proof to the owner that he has succeeded in acquiring the proper way in which to treat his wool clip.

It needs no apology from me in introducing this notice of motion to the members of the Clarence Board of Agriculture, as all must be seized with the fact that many owners of sheep do not, when the shearing season comes round, treat their sheep and wool in so careful a manner as is necessary to secure the maximum revenue and advantages that should be theirs if only fairly ordinary precautions were adopted to secure greater returns, which in many cases are lost by the careless way in which sheep are handled from the paddock, and wool from the back of the sheep treated from thence to the sale-room.

From the paddock, which is preceded by the operations of cleansing of wool-sheds, getting the shed in order, to see that all pens, gates, fences, and particularly those around yards are in such a condition as to be sheep-proof and freely worked. The yards should be prepared to prevent dust from rising either by being stoned, grated, covered with rushes (the common saggy) or watered, otherwise the tips of the wool become greatly injured, and a bad appearance is given to the outside wool. On no account should straw of any description be used, as it adheres to the wool and becomes firmly fixed in the fleece of the sheep, materially injuring and depreciating the value of the clips.

Following the above preparations the paddock is now gathered for the purpose of removing sheep to the shearing-shed. This must be done carefully; sheep should not be knocked about by dogs and driven so as to become overheated. In the movement from paddock to paddock to the shed all gateways should be protected against dust rising. If this cannot be carried out through the ordinary traffic gate-ways, then open the fence in a suitable position so as to provide against the trouble. The common sagg is an excellent covering to prevent the dust rising.

Before shedding sheep they must, when the weather is showery or the mornings foggy, be examined to ascertain if they are dry and fit for shearing. Wet sheep should never be shorn. It is a condition that causes great discontent amongst shearers of the present day; and, besides, if sheep are shorn wet it destroys the handling of the wool when opened out for sale, making it dead to the touch and deficient of the liveliness that should be present. The shearing-shed: the grating upon which sheep stand must be kept dry and continually looked after and swept to prevent it from becoming wet, causing the sheep to slip and fall, which would be of frequent occurrence, making them liable to be trodden upon by other sheep. The dirt and filth of the droppings would consequently adhere to the wool, greatly disfiguring the appearance of the clip, and giving it an unpleasant odour.

The shearing-floor is the next stage to the sale store. It is there that much damage is done to wool. This is the age of progression; the blade sheep-shears are giving place to machine-shearing, as in turn the sickle passed away to be superseded by the reaper and binder. The application of machine-shearing is a matter of ways and means, which has in view a more expeditious mode of shortening the wool harvest, particularly when the variations in the weather are in some seasons a source of delay and annoyance. There is no gainsaying the fact of the great advantage of machine over blade shearing; it is quicker, and in the case of wet seasons will enable the owner to have his wool in readiness to take advantage of the first favourable market, which on some occasions might make a great financial difference to him.

In the old days of blade-shearing, as in most cases are in evidence at the present time, the operators were, and are now, instructed to throw out the belly wool when clipped, so that it does not become mixed with the more valuable parts of the fleece. To prevent this the belly wool should be collected from the floor by the picker-up, and placed in a bale fixed for the purpose. Every shearer was in old times directed when shearing down the first side of a sheep to pass well over the backbone, so as not to cut into the valuable part of the wool, which, when done, the value of the fleece is lessened, in consequence of the staple being shortened and the fleece upon the back of the sheep destroyed in value for combing tops. I notice in frequenting shearing-sheds at the present time that this one very serious trouble, from want of attention or in some cases skill, is in evidence, to the loss of the owner.

*(To be continued.)*

## FORESTRY AT CRESWICK, VICTORIA.

By COL. W. V. LEGGE.

(Continued from page 204.)

ON leaving the arboreta the main-road leads one past the great nursery, occupying, on the left hand, the floor of the valley. On the slope of the hill to the right, and near by, is the edge of the artificial pine forest, into which an extensive vista is obtained through long straight rows of shaft-like trunks until their parallel lines vanish in the dim light of the foliaged canopy. The illustrations accompanying this article show the density of these valuable "timber woods," and call to mind the aspect of a German pine forest.

The Creswick nursery, with its millions of healthy verdant seedlings is one of the dominant features of this far-reaching afforestation scheme. Its formation and speedy completion on the site of a deserted mine-field is the chief feature of interest connected with it. Two years ago it was a "mullock" valley, full of holes and dotted with earth-heaps; at the time of my visit it was a bright sward of 4,000,000 verdant seedlings, the most of them being Conifers. In the making of the nursery the valley floor had first of all to be levelled, cultivated, and graded to an even surface, and then protected from the drainage and water-flow from the hills on either flank, caused by rain and melting snow. To this end a capacious water-channel or "spillway" (designed by Mr. Johnston, who carried out the entire work) was constructed entirely round the upper end and sides so as to carry the flood waters to the reservoir below. This capacious channel is cemented at the bottom and sides, the outer of which forms the bank around the planted area. The naturally poor land in which the seedlings are now raised, prior to the formation of the channel was annually enriched by soil constituents brought to it by erosion from the hillsides, but during the construction this was largely added to by carting, and a fairly rich bed was formed. The extent of the land now reclaimed for the nursery is about seven acres. The ground has been sloped gently upwards to the end of the plot, and the plants are grown in rows running lengthwise, to secure even drainage during heavy precipitations and snow-thaws in the spring. Time was not available for a detailed inspection of the species under growth, and which stood in their rows as thick as young onions, but their remarkable growth was evident at a glance, as the pines, which were more particularly brought to my notice, were planted on the 6th October, and were then 6 inches high. The majority of the plants were Conifers, among which may be instanced *P. radiata*, Monterey Pine; *P. laricio*, Corsican Pine; *P. pallasiana*, the Asiatic variety of the latter; *P. muricata*, Prickly Cone Pine; *P. strobus*, Weymouth Pine; *P. coulteri*, Coulter Pine; *P. ponderosa*, Yellow Pine; *Sequoia semper-*

*nirens*, Californian Redwood: Douglas Fir or Oregon Pine: and other species of true Firs (*Abies*) and Spruces (*Picea*), which are known to grow well in Victoria and furnish, in their habitats, commercial timber.

Among deciduous trees several species of Oaks are grown: also Elms and other European trees, as well as Australian trees of value, as Hardwood.

At the beginning of this year the nursery had been completed about a year and nine months. When finished it was forthwith planted, the quantity of seeds sown producing one and a half million plants, all of which were distributed in the reserves and elsewhere throughout the State within a year of the completion of the nursery. This output, together with the crop of four million plants this year, will total the dis-



*Arboretum Lake, showing Tool House cut in Rock. Pinus insignis in background.  
Creswick, West End of New Nursery.*

tribution throughout the State during the coming planting season to five and a half millions, a most satisfactory result for two years' work at the new nursery. It was understood that in this year's operations efforts would be made to replant portions of the cut-out timber areas in the forest districts with Australian timber trees. Another important work will be the gradual clothing with new timber of some of the bare ranges, in which connection a commencement has been made on the You-Yang Ranges (a noticeable feature of the western shore of Port Philip), where 500 acres out of a block of 5000 to be afforested have been already planted. Combined with this operation is the desire of the Department to assist municipal bodies in the ornamentation and shading of streets in the towns and townships throughout the State. In addition to this



necessary work may perhaps be the issue of trees at a nominal cost to farmers when the operations at Creswick and Macedon shall have assumed a greater magnitude; a not very distant date, at the present pace of advance.

For some years, however, the extension of the reserves at Creswick and other places, which are in hand now, will absorb thousands of trees. Moreover, it appears to be the desire of the Department to plant Pine, Spruce, and Fir in "pure" forests in localities throughout the State, all of which will require the utmost exertions at Creswick and Macedon to cope with present State demands.

According to last year's "Report on State Forests," 1000 acres were planted with Conifers at Frankston, Wilson's Promontory, Harcourt, and Warrnambool, besides the two reserves of Creswick and Macedon.

In sending out seedlings for afforestation the system of "wrenching" and "mossing" preparatory to "lining out" for distribution, is not followed at Creswick, the Sphagnum Moss, especially suited for the purpose, not being procurable in the district, as it is in most places in New Zealand; accordingly they are "balled" in wet clay by fifties, packed in hampers, and sent thus to their destination. The system of planting in the reserves, which is largely adopted, is the simple plan of "notching," at which the trained students at the Forest School are remarkably adept. One active and stalwart student, whose ambition was to get into the Indian Forest Service, was pointed out to me as having, with an assistant, planted as many as 2000 seedlings in an eight-hour day, the notching being done with a mattock, instead of a spade, as elsewhere. With this tool the operation is done, no doubt, quicker than with a spade, which, however, seems to the writer more suitable for making the two crosscuts, and the third-side one for lifting the cross to receive the plant, than the mattock. Nevertheless, this Creswick performance is surprising, and on my questioning it Mr. Johnston assures me, in writing, that it was done in heathy soil, not very favourable for the work. Our student, therefore, may be noted down as putting up a record in notching. This system of planting is so expeditious that it is proposed now to follow it in Victoria, instead of broadcasting the seed in prepared ground, which, though quickly done, entails much loss in seed, and subsequent labour in thinning out during early stages of growth.

*(To be continued.)*

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THE following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

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Sprent	A. Lee	Sprent
Staverton	T. Wootton	Staverton
St. Leonards	W. J. Figgis	St. Leonards
Stoodley	J. Leo	Stoodley

## BOARDS OF AGRICULTURE—continued.

BOARD.	HON. SECRETARY.	ADDRESS.
Stowport	J. G. Pearson	Round Hill, Burnie
South Springfield	J. Molphy	South Springfield
South Bruni	E. H. Pybus	Adventure Bay
Table Cape	H. J. Smith	Wynyard
Tyenna	F. M. Smith	Tyenna
Upper Mountain River	A. Griffiths	Grove
Wattle Grove	K. Lord	Wattle Grove (Lower)
West Tamar	H. Robinson	Frankford
Wilmot	D. E. Forbes	Wilmot
Yolla	D. T. Jones	Yolla

## Avoca, September 6.

**PRESENT.**—Messrs. J. Conway (Chairman), W. Ayers, J. Parker, Sen., L. Herbert, E. J. Adams, C. Rubenach, J. McCarthy, H. E. Malkin, A. T. Rubenach, L. Shelton, and H. Bennell (Hon. Secretary).

**IMMIGRATION.**—A report on the prospects for immigrants in this district was drawn up and ordered to be sent on to the Department.

**FARRIERS' CERTIFICATES.**—Resolved, "That this Board endorses the proposal to grant certificates to farriers."

**WAX MATCHES.**—Members were of opinion that the use of wax matches should be prohibited.

**NEW MEMBER.**—Mr. L. Shelton.

## Barrington, September 9 and October 7.

*September 9.*

**PRESENT.**—Messrs. A. Rolls (chair), J. A. Moore, A. Morey, C. Packett, H. Spurr, and A. E. Moore (Hon. Secretary).

**SEED.**—The Department's action in forwarding seeds for experimental purposes was favourably commented upon. Members expressed their intention of thoroughly testing the varieties sent.

**WAX MATCHES.**—It was resolved to recommend that the sale of wax matches be prohibited in this State.

**FARRIERS' CERTIFICATES.**—Members were of opinion that some action should be taken by the Department to make the holding of certificates compulsory.

**TASMANIAN FARMERS' SELLING AGENCY.**—Resolved, "That this Board favours the establishment of such an agency, and promises to give it its most hearty support."

*October 7.*

**PRESENT.**—Messrs. A. Rolls (Chairman), J. A. Moore, A. Morey, C. Packett, T. Williams, A. Newman, J. McNally, D. Russell, and A. E. Moore (Hon. Secretary).

**NEW MEMBERS.**—Messrs. R. Bye, O. French, C. Parker, and C. A. French.

**ELECTION OF OFFICERS.**—Chairman, Mr. A. Rolls; Secretary, Mr. A. E. Moore.

**CORN-SACKS.**—Resolved, "That this Board is of opinion that steps should be taken to secure the adoption of a standard corn-sack."

**ERADICATION OF FERNS.**—It was resolved to proffer the following advice in regard to this matter:—Cut in the spring, and burn off; then cut each subsequent growth while young and tender. Very few ferns will be left after the fourth or fifth cutting.

**REMOVAL OF SCRUB.**—The most satisfactory method known to members was to fell in winter (when the sap was down) and burn off in the autumn.

**SPARROWS.**—It was decided to suggest the adoption of the following scheme in connection with this question:—That each municipal council or local body

levy a special rate on every landowner within its district, and with the proceeds purchase a quantity of poisoned grain for distribution among landowners according to the ratable value of each holding.

**CONVEYANCE OF CREAM.**—Resolved, "That the Devonport Butter Factory be requested to call the attention of carters and drivers to the clause of the 'Dairy Produce Act' which provides 'that all cans used for the conveyance of cream shall be effectually protected from the heat of the sun.'"

#### Carnarvon, September 9.

**PRESENT.**—**MESSRS.** Tanner (chair), J. A. McGinniss, G. Eldridge, C. Trenham, J. P. Mathias, G. Wellard, A. C. Mathias, W. D. O'Neill, J. McArthur, E. A. Target, W. R. McGinniss, and D. B. Blackwood (Hon. Secretary).

**EXHIBIT OF EGGS.**—Mr. E. A. Target intimated that he intended sending a collection of eggs to the Launceston show if the Secretary would make enquiries regarding transit of same.

**WAX MATCHES.**—Members were opposed to the proposal to introduce legislation prohibiting the sale of wax matches.

**FARRIERS' CERTIFICATES.**—The granting of certificates of competency to farriers was not considered necessary, the general opinion being that the injury to horses' feet was due more to the owner's neglect than to faulty shoeing.

**AGRICULTURAL CADETS.**—It was decided that the Editor be asked to state the terms on which cadets would be available under the Government's immigration scheme.

**PAMPHLETS.**—Pamphlets on Irish blight (received from the Department) were distributed among members.

**SEEDS.**—The Director was accorded a vote of thanks for the parcel of seeds sent for experimental purposes.

#### Clarence, August 26 and September 30.

*August 26.*

An adjourned meeting of the Clarence Board of Agriculture was held on August 26 to consider two papers prepared by Mr. T. A. Tabart (Chief Inspector of Stock) as a member of the Board on "The Losses Due to the Bad Flaying of Hides, and Fire-branding and Ear-marking."

**PRESENT.**—**HON.** James Murdoch, M.L.C. (Chairman), and Messrs. S. Salmon, A. L. Morrisby, A. O. Green, W. C. Cato, E. P. Davies, A. McDermott, T. A. Tabart, H. Jolliffe, W. S. Westbrook, J. Cotton, A. Crisp, and R. A. Black (Hon. Secretary).

**VISITORS.**—Mr. E. J. Hore, a Hobart tanner and fellmonger, and Superintendent Conlan were present by invitation.

**EXHIBITS.**—Pictorial diagrams were hung up in the room by Mr. Tabart, and Messrs. J. Cook & Son very kindly sent for exhibition whole sides of sole leather, which showed cuts all over them from careless flaying and damage by fire-branding. One of the hides was plastered with cuts, and another showed the brand marks having taken effect right through the hide.

**FLAYING OF HIDES.**—Mr. Tabart read the following paper on this subject:—"The motion standing in my name referring to the bad flaying of skins off fat cattle is one of very great importance, and resolves itself into the application of skill or carelessness. The whole subject is deserving of grave consideration by the meeting, and as the losses are so interwoven with those referred to in a subsequent motion coming before members, namely, fire-branding of cattle, I would suggest to the meeting that both my papers be submitted and read to the meeting, and that they be discussed conjointly. I have upon frequent occasions brought under notice the evil of bad and indifferent flaying of hides and skins, and it appeals to me very forcibly that if owners were to inspect the operation of flaying in the large meat works in New Zealand,

Queensland, and also the Melbourne abattoirs, they would satisfy themselves that our hides and skins in the past have not had the best treatment that might have been provided. Having undertaken to submit my views to the members of the Clarence Board of Agriculture, I took the opportunity of approaching the Town Clerk to ascertain what power the Corporation had to prevent bad flaying at the abattoirs. It appears that although the regulations in force controlling the treatment of hides and skins by the slaughtering conditions at the abattoirs do not give all the protection needed, nevertheless ample provision for dealing with this important subject is contained in the contract. The contractor, in the terms of his agreement, undertakes to see that the workmen under his control shall flay hides and skins in a proper and workmanlike manner, so that no loss shall fall upon the owners of stock from defective work. The contractor, by the terms of his agreement, is under the control of the superintendent of the city abattoirs, who, if not satisfied that a workman is an efficient slaughterman or skinner, has all the power and authority necessary to call the attention of the contractor to the indifferent work being done, or can order the man's withdrawal from the slaughtering floor. These conditions, in themselves, are sufficiently stringent to prevent injury being done to hides, and also to obviate great loss to owners of stock by indifferent flaying. By the courtesy, and with the concurrence of the Town Clerk, I interviewed the superintendent of the abattoirs, and from our discussion have no hesitation in remarking that owners and the trade will be perfectly protected under his regime, and as he is a practical officer, I apprehend that the loss of money that has in the past been occasioned by careless and indifferent flaying will, under his supervision, be greatly lessened, if not stopped altogether. I have to congratulate the City Council upon their foresight in initiating and enforcing controlling power over the flaying of hides, which are valuable by-products of the trade. I should with respect desire to bring before the aldermen who represent the Abattoirs Committee that it should be stipulated with the contractor that he be at all times prepared with additional assistance to cope with any unusual rush for slaughtering, as it is at these times that the contractor's workmen, in their hurry to control their work, place the 'contract stroke' upon the hides and skins when siding a beast, to the ruin of the hide for the purposes of leather-making, loss in value to the owners, and considerable dissatisfaction to the tannery owner, who converts the raw article into a valuable commercial commodity. I have further ascertained that the associated master butchers have moved to protect their special interests by appointing an officer of their own to inspect and report upon any laxity in workmanship should hides and skins be depreciated in value by cutting or marking. This association's expressed dissatisfaction with the work of unskilful workmen would undoubtedly carry weight with the superintendent of the city abattoirs or the Abattoirs Committee. These combined inspections must have the effect desired, and improve the slaughtering carried out at the city abattoirs. I have very strong evidence before me, in the shape of a hide, of the disastrous effect of bad and careless flaying of hides and skins, and I desire members present to inspect it. There were slaughtered last year (1910) at the abattoirs within the cities of Hobart and Launceston and their suburbs, 10,565 head of cattle. Approximately, I should estimate that the lowest computation would reveal one-third of the skins of these animals, numbering 3521, badly flayed, causing a depreciation of 3s. 6d. per hide, which represents in cash £613. In fixing the above estimate, I have first-hand information from a very large firm of tanners and curriers, who advise me that the loss upon hides that have been badly flayed reaches from 3s. to 5s. per hide, and frequently exceeds the maximum. The abovenamed amount does not nearly cover all losses, as there are the hides of animals from towns and townships in the State and the

mining centres, where there is a large consumption of beef, and consequently the slaughter of cattle is in evidence—up to 7043 head per annum. The hides from these, owing to unskilful workmanship, will, it is estimated, show a loss of 4s. per hide—£1408. There is also a depreciation upon 15,087 cattle killed for food supply upon farms, both agricultural and pastoral. The hides from these cattle would be depreciated from 4s. to 5s. easily; therefore, in fairness, I would take a third of this number—3043, at 4s. loss per hide, £608—and the balance, 12,024 head of cattle, I set down at a loss per hide of 5s., which amounts to £3006. Therefore the approximate loss upon hides from bad flaying throughout the State is as follows:—

One-third of 10,565 head of cattle slaughtered at Hobart and Launceston, and suburbs: Number of hides, 3521; loss per hide, 3s. 6d.; total loss, £616.

Hides of cattle slaughtered in towns and mining centres: Number of hides, 7043; loss per hide, 4s.; total loss, £1408.

One-third of 15,057 hides from outside Hobart and Launceston and suburbs represents: Number of hides, 3043; loss per hide, 4s.; total loss, £608.

The loss upon 12,024 hides slaughtered on farms and agricultural and pastoral properties: Number of hides, 12,024; loss per hide, 5s.; total loss, £3006.

Total loss ... .. £5630.

These figures represent the approximate slaughter within the State of 191,405 cattle, with the estimated loss accruing from indifferent and careless flaying. I feel convinced that my figures are under-estimated. I am sure that thinking owners in the community, after perusing my remarks, will make an effort to save at least 5s. per hide by insisting that the skin be not cut. Those owners who fail to do so will soon realise that the loss is not to be regained, but has vanished from the owner and the revenue. It is careful manipulation of these farm by-products that enables owners to make substantial savings. By casting your eyes upon the charts you will observe the valuable portions of the hide and skin of the beast, which are readily depreciated by cutting and marking. The remedy is in the hands of the owners of cattle, so far as farm slaughtering is concerned, and in Hobart the city fathers have played their part in the contract by providing against a drift into careless flaying. I entertain the hope that when the contents of this paper are noised abroad more attention will be devoted to the protection from injury of a valuable by-product."

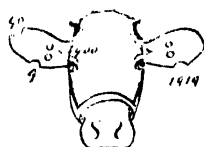
**FIRE-BRANDING.**—Mr. Tabart's paper on this subject ran as follows:—"As regards branding, I desire to call attention to the consideration of the serious loss in money value resulting to hides from off cattle that have been fire-branded (1) upon the valuable portions of the hide; (2) by the careless branding of cattle; (3) the use of excessively large brands. All these operations are most detrimental to the interests of owners when hides are submitted under the hammer for sale. The money values as between hides carrying small brands upon the portion of the skin representing a lesser market value when converted into leather, and those on which the brands are affixed upon the more valuable and most sought after prime portions of the skin, are greatly different, and must appeal to the members present. Through the courtesy of the Chief Inspector of Stock for New South Wales, Mr. S. D. Symons, I have been fortunate in securing a copy of a manuscript written by my old friend, the late Alexander Bruce, during the time he occupied the position of Chief Inspector of Stock for New South Wales. I have to express my indebtedness to Mr. Symons for the trouble he has taken to secure so important a document, as it shows the loss cattleowners are subjected to from

overlooking what at first sight might seem a bogey. It was considered when this paper was indited:—

- (1) That New South Wales was losing from defective branding £50,000 per annum.
- (2) That the annual loss in all the Australian States was £300,000 per annum, and likely more.
- (3) That the losses computed by the secretary of the Tanners' and Curriers' Association from branding are, from the commencement of the inquiry, £1,600,000.
- (4) That one tanner, who put through 100 hides per week, was losing 10s. 8d. per hide.
- (5) That if owners were to brand in a proper manner, they would increase the value of their cattle 5 per cent. to 7½ per cent.
- (6) That hides suitable for furniture cannot be obtained in the State, and have to be imported, on account of brands.
- (7) That this is the case also with regard to leather for buggy hoods, and a good deal of saddlery.
- (8) That besides the direct loss, the State suffers severely through the bad name Australian hides and leather have got.

The above list of practical and tangible depreciations from wrong branding in all its phases shows that cattleowners in Tasmania should consider the question of £ s. d. in earnest, and as a Branding Bill will be before Parliament this session, I would suggest that some endeavour to find a remedy be made. Through the courtesy of Messrs. Burrows and Meek I was permitted to inspect their stock of tanned hides, and I have no hesitation in saying that it was a revelation to see the great difference between Australian, Tasmanian, and the Florence hides, the lastnamed being of splendid quality and free from brand-marking, while the hides from the two firstnamed places were disfigured by branding all over, chiefly upon the prime parts of the cattle. I purpose first dealing with fire-branding upon valuable portions of the hide. I have in my inspections frequently had evidence of the destruction of hides by careless branding, or brought about by the unskilled handling of the branding-iron, or possibly brought about by too great a pressure, or through being kept too long upon the beast, consequently leaving a blotched, indistinguishable mark. This mark in many instances has been placed, with the view of conspicuousness, upon the most valuable parts of the beast. This is bad enough, but the pain inflicted upon the dumb animal must be intense. And what purpose is there in affixing such a brand upon the animal? It is no security from theft, as the identity of an animal could not be sworn to by an illegible mark. The second matter is the careless branding of cattle. The branding of cattle upon the most valuable part of the hide is calculated to lessen its value from 2s. 6d. to 3s. per hide. I should consider that in Tasmania, where our cattle do not attain, as a rule, the size of Australian beasts, that the loss in this State would not exceed from 1s. 6d. to 3s. per hide, giving an average of 2s. 3d. per skin on butchers' cattle, that is, provided the branding is upon the ribs, loin, back, rump, or hip—the most valuable parts. In dealing with this condition of depreciation of hides, I can with confidence recommend you to visit the establishment of Messrs. Cook & Son, who assured me that they would be only too willing and pleased to explain and show the great difference between the Florence hides and those treated in Australia and Tasmania. The difference is most marked, Florence being without brands or any disfigurement, whilst our own State hides are branded all over the best parts of the hides and elsewhere. The values of Florence, New Zealand, and Tasmanian hides bear unmistakable evidence of loss by our own State. Florence hides are worth 10½d. per lb. the undressed skin; New Zealand, 7½d.; Tasmanian, 6½d.; Tasmanian (second quality and cut), 4½d.

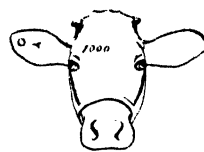
# M<sup>r</sup> TABART'S SYSTEM OF BRANDING.



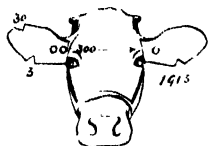
THE NEAR EAR signifies the age mark



THE OFF EAR signifies the special mark allotted to the owner of cattle

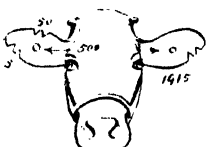
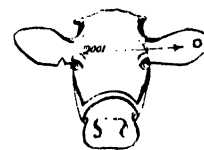


THE NOTCHES placed in the different portions of the ear denote recorded numbers (see notes) to enable the Department to establish, with the greatest accuracy, the identity of the breeder of cattle.

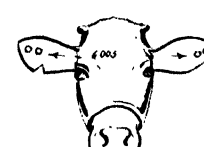
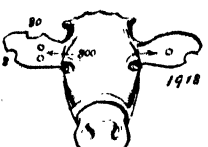
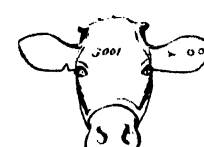
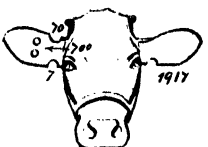
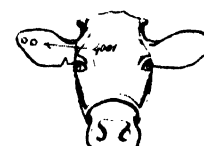
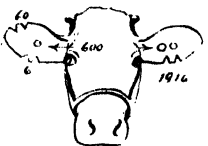


## RECORD SYSTEM

Name of Owner or Agent with address	Number of Cattle	Ear Mark or Stamp to Age Mark	Ear Mark Number	Age Mark
J. W. Brown Paragon	310		11	1911



Representing no. 1. 2. 3.	Representing no. 4. 5. 6.	Representing no. 7. 8. 9.	Representing no. 10. 11. 12.
10 20 30	40 50 60	70 80 90	100 110 120



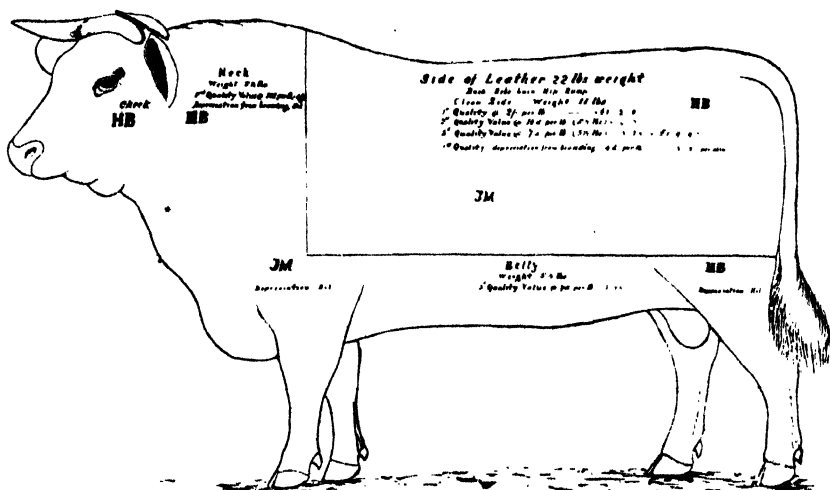


Therefore, Florence hides exceed in value those of New Zealand by 3d. per lb., and those of Tasmania first quality by 3½d. per lb., and seconds and cut hides by 6½ per lb. Then New Zealand exceeds Tasmanian values by first quality ½d. per lb., and second quality by 3½d. per lb. Such facts as the above must set owners thinking, and should induce them, in their own interests, to establish an alteration in the treatment of this valuable article of trade. This question should be seriously taken up by cattleowners, who must realise the loss that daily occurs from fire-branding, overlooking the easy manner by which they can remedy the evil practice and save money. There are now in this State approximately 200,000 head of cattle, which easily carry a loss of 1s. per hide from defective, excessive, and injudicious branding upon the valuable portions of the hide, meaning a loss to the State of £10,000, but if the hip, back, rump, loins, and ribs are subjected to this treatment, then 2s. 3d. a hide will hardly cover the loss. I have based my calculations upon a beast being branded only on one side, but if both sides are utilised, as is the case with many purchased cattle, then the loss per hide will be considerably augmented. The conditions that apply to tar and paint branding of sheep equally apply to hides. The trade recognise the profit that should be theirs from the by-product, and operate accordingly. When bad brands and excessively large brands are placed upon the most valuable parts of the animal, the value of the beast is depreciated. If breeders of cattle would take this to heart, and save 2s. 3d. per hide, it would be money in their pockets. It might cause a little more trouble, but the man who appreciates and follows out my advice must ultimately be the gainer. In conclusion, I trust that my remarks may be taken in the spirit in which they are written, viz., purely in the interests of the producer. I beg to submit the following suggestions for the consideration of the members of the Clarence Board of Agriculture:—

- (1) Excessive branding of stock.—I have initiated a scheme for the ear-marking of sheep, which will equally apply to cattle, as in many cases an owner might desire to earmark only. This would be a standard mark that could not be obliterated or removed (and the hide would equal the Florence hide, so far as it applies to the absence of brands).
- (2) Branding upon the valuable parts of the body.—If owners elect to fire-brand, the least valuable part of the hide should be selected, viz., cheek, neck, arm, thigh. In this State the herds are so small that the brand does not require to be placed high on the animal, but if owners wish, let the brand be on the shoulder, where the hide value is 10d. to 7d. per lb.
- (3) Use of excessively large brands.—It is so apparent that the small brand has a significant favour against the disfigurement and depreciation of the hide that owners in their individual interest should herald an alteration."

**DISCUSSION ON PAPERS.**—Discussion ensued on the papers read by Mr. Tabart. Mr. Hore said that, as a practical tanner and fellmonger of considerable experience, he supported Mr. Tabart's statements in all respects. The speaker then held up to view a badly-cut side of leather, and pointed out that it was one mass of cuts, and stated that the leather was thereby made useless. Hides containing much fewer cuts would realise much lower prices than those properly flayed. In the same way fire-brands much depreciated the value of a hide when placed on the most valuable portions of it, and he agreed that cattle should be branded on the cheek, forepart of the neck, and other less valuable parts pointed out by Mr. Tabart, whose suggested system was an admirable one. He also thoroughly endorsed what Mr. Tabart had said about the losses in wool by the marking of sheep with tar and paint.

The wool so stained had to be taken out. Frequently there were half a dozen brands on the wool, and then the wool on a skin was scarcely of any value at all. Butchers' drovers and the like, taking charge of sheep purchased at sales, often use a bucket of tar-pitch or paint, mostly tar, and stuck great hot dabs of the material on the sheep till the stuff ran down and through the wool, spoiling most of it. Such off-hand work was also severe cruelty, as the hot tar often got down to their skins, and must inflict much pain. As a proof that the mark of the burning was often found after slaughtering animals to have seared right through the pelts, and left a dark stain on the leather after it was tanned. Hides imported from Victoria and New Zealand were not so badly damaged as Tasmanian hides. New South Wales hides were bad in this respect. In purchasing hides he passed over cut ones, and the loss was the owner's; but sometimes the cuts in salted hides were not so easily detected. A Hobart auctioneer the other day told him that he was tired of pointing out to butchers the losses they sustained in this way. It meant a loss to the producers in the long run. The loss was 3d. to 4d. per



lb. in the value of a hide. He had seen next to nothing got for hides badly cut. The brands on hides often showed right through after tanning, which indicated the severity of the burning, and how the poor animals must have suffered. [The Chairman: Can you give us any idea of the percentage of hides which are cut as badly as the one now exhibited? Mr. Hore: A large number. I overhaul perhaps 60 or 70 hides a week for tanning purposes, and would not pick out more than half that number as free from blemishes of the kind. I would reject about half the number because of cuts. The country butchers and country station people are far worse than the abattoir people in cutting the hides. Mr. Salmon warmly commended the good work Mr. Talbair was doing in calling attention to this matter, in the interests of the producers. It was to be hoped that much good would come of it. They all knew of the value put on French calf leather. In France, if the flayer cut into the hide below a certain depth, and beyond a certain length, he had to pay the damage. He thought the offering of prizes to slaughtermen for good work in this respect would be a good thing. In branding cattle some people used branding-irons which were too thick, and were made too hot. The instruments should be thin, and of steel, and then the slightest touch on the animal would be sufficient. He remembered purchasing a lot of cattle at Campania which were covered with brands, one steer being so plastered with

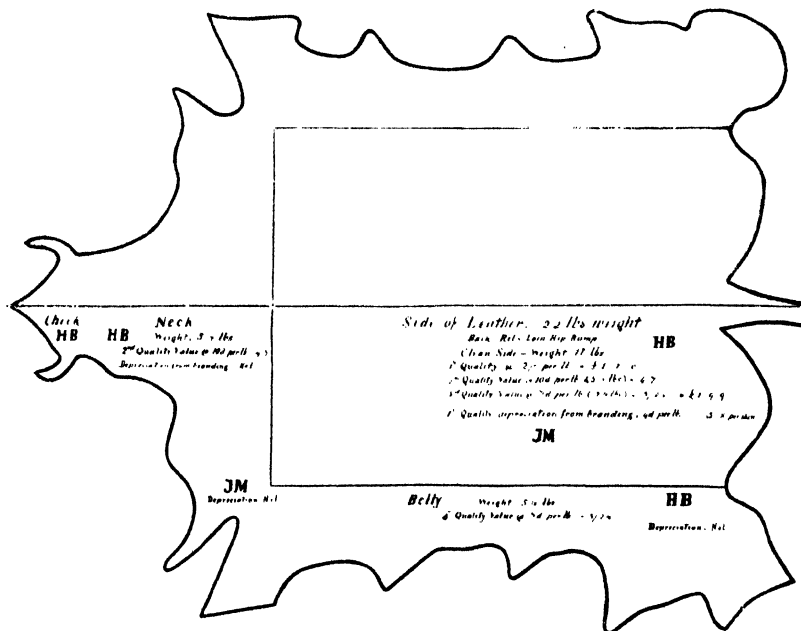
them that his men called it "the alphabetical steer." He commended the branding system recommended by Mr. Tabart. The Chairman said the producers generally were indebted to Mr. Tabart for the trouble he had taken in preparing such informative papers and diagrams; but when tar, pitch, and paint were put on the sheep by the butchers or their men, and the hides were badly flayed by them, the producer should not suffer. Mr. Tabart said the damage indirectly fell on the producer, because the butchers included such depreciations in their calculations when purchasing. The Chairman said if such were the case, the sooner the farmers met and had an indignation meeting the better. The Secretary read a letter from the Minister for Agriculture, promising to have the matter considered in connection with the Branding Bill. The Chairman said he could quite understand the indifferent flaying on farms and stations, where beasts were killed for local consumption, but it should not be so with the butchers. As to the branding of cattle, he did not think it was so badly done now as formerly. The Secretary read a letter from Mr. T. Dawson, stating that some time ago he was informed by a leading Hobart boot manufacturer that Tasmania lost £30,000 a year through the bad branding and the bad flaying of hides. The Chairman thought that was an exaggeration. After further discussion a resolution was passed expressing gratification at learning that better care was now taken in the flaying of hides at the Hobart abattoirs. It was resolved, "That the City Council be asked to do everything in its power to prevent the use of tar, pitch, and paint in marking sheep at the abattoirs, and that the same request be made to all municipal councils in the State that have had the control of slaughter-yards." Mr. McDermott said it was desirable, in branding bullocks on the neck, not to place the brand where the bullock-yoke would rub. At to the marking of sheep, he had prohibited his drovers from using tar. They used raddle, which would wash out of the wool. But he had seen tar used at Sorell and Bridgewater saleyards by the drovers, and tar splashed all over the wool, as complained of by Mr. Hore. That was a butcher's loss, undoubtedly. He moved a resolution as to the parts of the hide of a beast to brand on the lines suggested by Mr. Tabart, and said he would prefer seeing all cattle branded about the head or forepart of the neck as much as possible, and he did not see why brands should not be put on the foreheads of beasts; failing that, then on the lower part of the shoulder or thigh. No doubt the present system of branding all over the hide meant a loss in the sale of the hides. The motion was agreed to. A hearty vote of thanks was accorded to Mr. Tabart and Mr. Hore for their information, and Mr. Tabart intimated that he was preparing a paper on the treatment of wool from the fleece to the shearing-board. The following motion, moved by Mr. Green, was carried:—"That Mr. Tabart's papers, together with the illustrations, be forwarded to the Director of Agriculture, with a request that they be published in the "Agricultural Gazette."

**WHITE WEED.**—Mr. Salmon gave notice that at the next meeting he would move a motion with the object of reopening the question of the damage done by the white weed, and he hoped the members of the Board would in the meantime collect all the information they could on the subject.

**FARRIERS' CERTIFICATES.**—An interesting communication on this subject was received from the Director of Agriculture. Mr. Benson wrote:—"The advisableness of granting certificates of competency to farriers who have proved their proficiency in their business has been suggested to this Department. I would be glad, therefore, if you would submit the following questions to your Board:—(1) Do you consider it advisable that farriers should possess a thorough knowledge of the correct methods of shoeing a horse so as to prevent injury from brushing or over-reaching, and to counteract the ill-effects of narrow or contracted hoofs, sand-cracks, corns, &c. (2) Farriers

to pass an examination by a qualified veterinary surgeon in order to show that they are competent to shoe horses in an efficient manner, no matter what class of foot or hoof the horse may have. (3) Farriers who pass the necessary examination to be allowed to use the term 'certified,' or 'certificated' farrier as a proof of competency." It was decided that Mr. Benson's letter should lie on the table until next meeting of the Board.

**ONION WEED.**—Mr. A. O. Green excited laughter by asking for leave to move a motion without notice on the ground of urgency. This was conceded, and then he produced a handful of the onion weed in flower and shedding its seed, which he had found growing in the Municipal Council's garden. The weed, he said, was interdicted by proclamation, and municipal councils were required by the Act to keep the weed down. The Council and the Clarence Board of Agriculture, Mr. Green said, should not permit the weed to grow at the very doors of the council-chamber. He moved that the attention of



the Clarence Council be drawn to it. The motion was carried, amid inquiries, "Where is the Council's inspector?"

September 30.

**PRESENT.**—Messes. S. Salmon (Chairman), P. W. Goodwin, J. O'May, E. P. Davies, C. F. Percy, John Cotton, T. A. Tabart, T. Dawson, H. Jolliffe, W. Westbrook, H. Blyth, A. Allison, and R. A. Black (Hon. Secretary).

**NEW MEMBER.**—Mr. Joseph Salmon.

**CERTIFICATED FARRIERS.**—Mr. Tabart thought that if all farriers or horse-shoers were compelled to pass an examination in scientific knowledge of the structure of the feet of horses it would impose a great hardship on those who were shoeing horses successfully and well, and had been doing so for years. In all his experience he had had only one horse lamed by a shoeing blacksmith, and that was at a shop where a veterinary surgeon was frequently in attendance. He had never seen a veterinary surgeon shoe a horse. He thought the general public ought to be satisfied. Did this movement mean having to

pay higher prices for shoeing? [Mr. Cotton: It is often Hobson's choice with horseowners.] Mr. Tabart said he knew of young fellows in farriers' shops in Hobart who made a study of the shoeing business, and had purchased expensive works to study their calling. Mr. Joseph Salmon said that horses were often injured by bad and careless shoeing. This movement as to certificates was calculated to improve the shoeing of horses in a general way, and should be encouraged. After further discussion it was resolved to reply:—“(1) That all farriers should have a good practical knowledge of the correct methods of shoeing; (2) that the examination should be by a veterinary surgeon, assisted by a practical horseshoer; and (3) that the certificate suggested is desirable.” Mr. Cotton said that there was more injury and suffering inflicted on horses by improper shoeing than from all other ill-usages which those animals were subjected to. It was observable any day in Hobart and elsewhere. It was often due to horses being shod in a hurry. The shoe too often was not made to fit the horse's foot, but instead the foot was hacked and burnt to fit the shoe, with disastrous results. When there were a lot of horses to be shod, in order to get through the work quickly the blacksmith resorted too often to burning with hot shoes. He (the speaker) had actually seen the burning hoof boiling and bubbling over the edge from the hot iron. Often, too, under such circumstances the shoes were fastened on too hot, resulting in crackings and contractions of the hoofs. He would like to see a law passed compelling shoers to put the shoes cold on horses. The Society for the Prevention of Cruelty to Animals would take the matter up; but it had not got the funds to appoint a shoeing inspector. He thought the Government should cause inspections to be made.

**WAX MATCHES.**—The Director of Agriculture wrote that he was requested to ask the Boards whether they thought the importation of wax matches into Tasmania should be prohibited, owing to their being the cause of so many fires. On the motion of Mr. Tabart it was agreed that the suggestion be not entertained. It was mentioned that on the West Coast and parts of the North-West in the wet seasons the miners could not get a light with other sorts of matches; at any rate, the only reliable ones were the “waxies” carried in tin boxes.

**THE SPARROW PEST.**—The Mooreville Board of Agriculture wrote inquiring what were the best modes of suppressing the sparrow pest. Mr. Tabart instanced striking results obtained by the use of phosphorised canary seed. Sparrows were very fond of this seed, and took it freely. The phosphorised seed should be placed out of the reach of poultry. Mr. Goodwin said that at Campania he had seen phosphorised small grain, such as cracked wheat and the smaller grains saved at threshing and winnowing time, get rid of the sparrows wholesale. Mr. Davies mentioned reports from time to time in mainland publications of the very successful use of a mixture of plaster-of-paris, oatmeal, and sugar in killing sparrows, rats, and mice. The proportions were: to every half-pint of well and finely crushed plaster-of-paris add double the quantity of oatmeal and half a teacupful of white sugar. Mix these ingredients up in a dry state very thoroughly, and place the same in receptacles convenient for the pests and out of the reach of poultry. In preparing and mixing the hands should not touch the ingredients at all. The same applied to phosphorised seed or grain for sparrows. The success of the paris-green mixture, especially with rats and mice, was remarkable, and was attributed to the fact that the creatures did not feel the ill-effects of taking this “feed” for a day or two, and were therefore off their guard as to the cause of their decimation. With ordinary poisons the ill-effects commenced so quickly, and the animals dropped so near the place where the poison lay, that the rest of them avoided the tempting feed, and to a great extent the immediate surroundings as well.

**WHITE WEED.**—The Chairman remarked that white weed was rapidly spreading all over the State, and it was lamentable that so few people took notice of it. Land badly infected with this weed was reduced to half its value. Districts still free from it should be careful to keep it out. Mr. Tabart said the movement of chaff contributes to the spread of the weed all over the island. Mr. Goodwin said that the present trouble with this weed and others was that the old farmers in the past had not taken care to suppress such growths, and the later generation of farmers had to endure the consequences. The white weed was twenty times worse than the Californian thistle. [The Chairman: Yes, than all the other weeds put together.] Mr. Tabart said the proper way to eradicate this weed was to keep on cutting it below the surface of the ground, and never let it come up. It would then die out after a time. Mr. O'May mentioned that the application of carbide from an acetylene gas apparatus was very effective in killing white weed.

**PREPARATION OF WOOL.**—Mr. Tabart read a paper on the "Preparation of Wool," the first portion of which is given on pages 498 and 499 of this issue. In reply to a question from Mr. Cotton, Mr. Tabart said that the further pressing of bales after the sales was for the convenience of shipping; but it was very inadvisable to press the wool too tightly in the bales forwarded to the sale rooms. The Chairman commended the paper as epitomising the best way of preparing wool for market. Mr. Tabart was heartily thanked for his paper.

#### East Mersey, September 14.

**PRESENT.**—MRS. J. F. Piper (Chairman), Loane, Nichols, Findlay, Mawer, and E. D. Kelly (Hon. Secretary).

**TRET ON POTATOES.**—On the motion of Mr. Nichols the following resolution was passed:—"That this Board strongly objects to the deduction for tret made by merchants in connection with consignments of potatoes, and strongly endorses the action of the New Ground Board in this matter."

**CHART.**—The action of the Director in forwarding chart of pests, &c., evoked much favourable comment from members, who considered that the chart contained a fund of valuable and interesting information.

**WEATHER-GAUGE.**—It was considered that the Department should supply the Board with a weather-gauge.

**SEEDS.**—The seeds sent by the Department for experimental purposes were distributed among members, who expressed their appreciation of the Director's thoughtfulness.

**EXHIBITS OF EGGS.**—Several members stated their intention of forwarding collections of eggs for the use of Mr. Terry in connection with his exhibit at the Launceston show.

**WAX MATCHES.**—Resolved, "That this Board supports the proposal of the Elizabeth Town Board with regard to restricting the sale of wax matches."

**BITTER PIT.**—Members considered that they had not had sufficient experience in fruit-growing to enable them to supply the Department with any reliable information on this subject.

**FARRIERS' QUALIFICATIONS.**—The questions contained in the circular from the Department *in re* the qualifications of farriers were approved by members.

**SPRAYING EXPERIMENTS.**—Surprise was expressed that no definite information had been received regarding the spraying experiments conducted by the Government. It was decided that the Department should be asked to furnish the Board with such information, and in particular with the results of the experimental spraying at Mr. J. Hope's farm at Sheffield. It was also thought that all spraying-machines should, where necessary, be immediately repaired and tested.

**Ellendale, September 24.**

**PRELIMINARY.**—A meeting of farmers was held on the above date for the purpose of forming a Board of Agriculture. Sixteen were present, Mr. W. J. Stanfield being in the chair. After discussion the following resolution was carried:—"That it is desirable that a Board of Agriculture be formed at Ellendale, to be called the 'Ellendale Board of Agriculture.'"

**ELECTION OF OFFICERS.**—Chairman, Mr. G. Cook; Hon. Secretary, Mr. H. L. Swifte; Hon. Treasurer, Mr. W. J. Stanfield.

**SUBSCRIPTION.**—The subscription was fixed at 1s. per annum, payable in advance.

**DAY OF MEETING.**—It was agreed that the ordinary meeting should be held on the Wednesday preceding the full moon in each month—summer at 8 p.m., and in winter at 7 p.m.

**ROLL OF MEMBERS.**—The following gentlemen were enrolled as members:—C. J. Holmes, E. Saunders, C. Rolls, Jun., J. Holmes, W. Tomlin, G. Cook, J. Holmes, E. Rayner, I. R. Clark, G. E. Clark, G. Clark, D. McConnell, E. Cloak, J. H. Cooper, J. Tomlin, W. J. Stanfield, and H. L. Swifte.

**Elliott, October 7.**

**PRESENT.**—Messrs. F. Hyland (Chairman), J. W. Harnett, R. V. Gee, J. Clark, A. Clark, C. Vievich, J. Deayton, H. Gale, and L. H. Shepperd (Hon. Secretary).

**SEEDS.**—The seeds sent by the Department were distributed among members. Those who had tried it considered that *Phalaris commutata* was likely to prove a most valuable grass, especially as regards winter growth.

**STANDARD CORN-SACK.**—Resolved, "That this Board strongly favours the adoption of a uniform size for corn-sacks."

**DESTRUCTION OF SPARROWS.**—Several members had found the use of poison very satisfactory in this connection. To render this method of destruction more effectual, however, it was considered that poison should be laid simultaneously—on a day or days to be fixed—by every farmer in the district.

**ERADICATION OF FERNS.**—Members' experience showed that the best results were obtained by cutting the ferns twice in the summer and autumn. One member stated that he had completely destroyed them by cutting them four times in the summer months during a period of four years.

**TRET ON POTATOES.**—It was considered that owing to the prevalence of blight the present system of double "picking-over" practically precluded the possibility of dirt (to the extent charged for) getting into the bags. Members were therefore of opinion that if united action were taken the practice of making a deduction for tret could be stopped.

**Exton, September 15.**

**PRESENT.**—Messrs. A. Badcock (Chairman), Long, Brumby, L. Badcock, Cooper, Bellinger, and J. H. Room (Hon. Secretary).

**WAX MATCHES.**—Members were of opinion that, as they were unquestionably the cause of much loss through fire, the sale of these matches should be prohibited.

**EGGS FOR LAUNCESTON SHOW.**—Four members expressed their intention of supplying one dozen eggs each for the use of the Poultry Expert in connection with his exhibit at the Launceston show.

**LAND FOR IMMIGRANTS.**—The land in this district is thickly settled, and any farm becoming vacant is quickly taken. Members therefore considered that there was no land available for immigrants, especially as the Crown lots in the vicinity are not suitable for settlement.

**TRET ON POTATOES.**—Resolved, "That this Board strongly protests against the charge made by merchants for tret on consignments of potatoes."

**SEEDS.**—The seeds sent by the Director (who was accorded a vote of thanks) for experimental purposes were distributed among members, who undertook to report the results of their experiments.

#### Forth, September 8.

**PRESENT.**—Messrs. W. Kennedy (chair), T. Wellard, C. H. Wellard, W. Cash, A. Cullen, E. Vertigan, H. Hays, T. Bowden, Jensen, W. J. Palmer, and H. A. Vertigan (Hon. Secretary).

**TESTER.**—A sub-committee was appointed to make arrangements for the use of this instrument.

**EGGS FOR EXHIBITION.**—It was resolved that one dozen hen eggs be forwarded for exhibition at Launceston, as requested by the Department.

**TOBACCO STEMS.**—A letter was read from the Department stating that 26 bags of tobacco stems would be forwarded to Leith station, and requesting members to sow them upon potatoes as an experiment. It was decided that the stems, when received, should be sown as directed.

**SULLA CLOVER.**—The Secretary was instructed to supply the Department with the required information regarding the sulla clover plots at the State school.

**WAX MATCHES.**—On the motion of Mr. H. Hays the following resolution was carried:—"That this Board favours the sale of wax matches being controlled by licence."

**SEED POTATOES.**—A letter was read from Mr. D. Loane in regard to the treating of seed potatoes with formalin.

**FROST.** Mr. Jensen was accorded a vote of thanks for a most interesting and instructive paper on "Frost."

#### Glen Huon, September 9.

**PRESENT.** Messrs. E. R. Shield (Chairman), W. Voss, P. Davern, P. Woolley, T. Brown, W. Watson, E. A. Wright, J. E. Wright, T. Lane, E. A. Brown, V. Watson, M. Watson, and P. H. Young (Hon. Secretary).

**CADETS FOR ORCHARD WORK.**—It was decided to inform the Agricultural Department that there was no opening for cadets in this district.

**SEEDS.**—The seeds supplied by the Agricultural Department were ordered to be left with the Secretary for distribution. As the seeds were given for experimental purposes it was agreed that those who took samples should give them a fair test, and report results at different periods to the Secretary.

**ENGLISH FREIGHTS.**—Mr. Shield roundly condemned the action of a certain firm in putting up freights, and thought that growers should see that their agents did not in future grant space to that particular firm.

**CENTRAL PACKING-SHED.**—The Chairman outlined the probable working of this proposed institution. He dealt with the benefits it would be likely to give to orchardists, and then went on to discuss its disabilities, summing up against establishing a central packing-shed in fruit districts. Mr. E. A. Wright did not think that the local conditions were favourable to the working of a central shed, and thought it would be much better if orchardists gave their full attention to matters of greater importance, such as the marketing and selling of fruit, &c. On the initiative of Mr. W. Voss a motion was carried declaring against the establishment of a packing-shed such as that referred to.

**STATE EXPORT DEPARTMENT.**—This subject was discussed at some length. Mr. Shield said that the only State export department they had in the Commonwealth had not proved a success, so he did not think anything was to be gained by establishing one in Tasmania. Mr. E. A. Wright said that the Tasmanian fruitgrowers had themselves built up the export trade and had made a success of it, and he felt sure that the orchardists did not want the Government to step in now to run the business.



## Glenorchy, August 17.

**PRESENT.**—Messrs. T. Barwick (Chairman), J. J. Pitt, W. Ryan, A. Bailey, H. Howard, Salter, W. Bailey, W. Forsyth, and W. Clifford (Hon. Secretary).

**SPRAYING.**—A considerable amount of discussion took place on the subject of spraying for woolly aphis. Mr. Barwick said he had sprayed with "Scaley-side," and found it very effective. The cost was about 2s. a quart, or 7s. 6d. a gallon. Mr. Howard stated that he had used red oil with very good results. The expenditure for oil was 1s. 6d. per gallon, and the soap added cost from 1s. 9d. to 2s. for small quantities. Mr. Salter stated that he had used "Vapourite" around the roots of the trees; he found that it was very effective, and gave better results than "Paraffine." It was pointed out by Mr. Pitt that, if not used carefully, "Vapourite" would kill the young trees.

**FARRIERS' CERTIFICATES.**—On the motion of Mr. Forsyth the following resolution was passed:—"That this Board is strongly in favour of the issue of certificates of competency to all farriers who have passed an examination by a qualified veterinary surgeon."

**CALIFORNIAN THISTLE.**—Members did not favour the work of inspection under the "Californian Thistle Act" being taken out of the hands of local inspectors and placed under Government control.

**SUGAR-GUM.**—Mr. Forsyth brought under the notice of members the advantages of the sugar-gum as a shade tree. He said he had planted some of these trees four years ago, and they were now 15 feet high, with a spread of 8 feet. The price of the seed was 2s. 6d. an ounce.

**EXPERIMENTS.**—It was decided that Mr. Forsyth be requested to furnish the Board with a report upon his experiments in connection with the suitability of manures for certain soils.

**SEEDS.**—The seeds sent by the Department for experimental purposes were distributed among the following members:—Mr. W. Bailey (Rhodes' grass and *P. commutata*), Mr. Pitt (Rhodes' grass, sugar-beet, and *Chou moullier*), Mr. A. Bailey (Rhodes' grass and white mustard), Mr. Howard (sugar-beet and soy beans), and Mr. Clifford (white mustard).

**STATE EXPORT DEPARTMENT.**—On the initiative of Mr. Clifford it was resolved, "That this Board does not favour the establishment of a State Export Department in connection with the fruit industry."

**NEW MEMBERS.**—Messrs. G. Pierce, E. Salter, and W. Tribolet.

## Hobart, August 30 and September 25.

August 30.

**PRESENT.**—Messrs. L. Rodway (Chairman), T. Williamson, J. Wardman, R. A. Salter, C. Good, F. E. Ward, Butler, Woolley, Lee, G. Rowntree, D. Balchen, and W. H. Connor (Hon. Secretary).

**LUCERNE.**—Mr. Williamson tabled a parcel of tree lucerne seed for distribution among members.

**WEEDS.**—Mr. Rodway gave a very interesting lecturette on "Weeds," and illustrated his remarks by means of mounted specimens of the various noxious varieties.

September 25.

**PRESENT.**—Messrs. T. Williamson (chair), J. Wardman, R. A. Salter, D. Balchen, J. Osborne, Jun., and W. H. Connor (Hon. Secretary).

**VISITORS.**—Messrs. Cato and Wessing.

**FARRIERS.**—This matter was fully discussed, and it was unanimously decided to answer all three questions in the affirmative.

**SPARROW PEST.**—Resolved, "That this Board is of opinion that this matter would be best dealt with by the formation of sparrow clubs."

**BITTER PIT.**—A list of questions was submitted from the Department in regard to this subject. Mr. J. Osborne, Jun., Horticultural Expert, gave members much useful information concerning the disease and its treatment, and it was resolved that the matter be further discussed at a future date.

**NEW MEMBER.**—Mr. P. Johnson.

# **Irishtown, September 11 and October 9.**

*September 11.*

**PRESENT.**—Messrs. G. D. McPhail (chair), W. R. Johns, C. Green, D. Reid, S. Reid, C. Finter, E. Poke, and E. L. Smith (Hon. Secretary).

**NEW MEMBER.**—Mr. E. Poke.

**SEEDS.**—The seeds forwarded by the Director were distributed among members.

**EGGS FOR LAUNCESTON SHOW.**—Mr. D. Reid stated his intention of forwarding a collection of eggs for inclusion in the departmental exhibit at the Launceston show.

**WAX MATCHES.**—It was resolved that no action be taken in connection with the communication from the Rubicon Board relating to the prohibition of the sale of wax matches.

**FARRIERS' CERTIFICATES.**—Members generally considered it very advisable that farriers should possess a thorough knowledge of shoeing. A resolution was passed favouring the examination of farriers by a qualified veterinary surgeon; those who passed to be allowed to use the word "certified" or "certificated" in connection with their business. Members were not, however, in favour of debarring those who failed to pass from practising shoeing, contending that such a prohibition would occasion a great deal of inconvenience in outlying districts.

**GOVERNMENT VETERINARY SURGEON.**—Resolved, "That this Board considers it essential that the Government Veterinary Expert should tour the State at least once a year—visiting each centre, lecturing, demonstrating, and inspecting any diseased stock that happened to be in the locality at the time of his visit."

**QUARANTINE.**—Resolved, "That this Board is strongly in favour of the Government assisting the dairy industry by giving effect to the Director's proposals in regard to the relaxation of the regulations dealing with quarantine."

**SEED POTATOES.**—The Secretary was instructed to make inquiry regarding the conditions under which seed potatoes could be imported from outside the Commonwealth.

**LECTURES.**—It was resolved that Messrs. Conlon and Terry be asked to each deliver a lecture in the district. It was also decided that during his stay Mr. Terry be requested to advise farmers as to the best sows to retain for breeding purposes.

*October 9.*

**PRESENT.**—Messrs. G. D. McPhail (Chairman), M. O'Halloran, D. Reid, J. McPherson, and E. L. Smith (Hon. Secretary).

**SPARROWS.**—Resolved, "That this Board considers constant and systematic poisoning the best means of dealing with this pest, and suggests that good corn mixed with about one-fourth of its bulk of poisoned grain should be sown on the surface of the ground after the crop has been drilled and harrowed in."

**CORN-SACKS.**—Members expressed themselves as being in favour of a uniform sack—to hold either 3 bushels or 200 lb.

**EXPERTS.**—It was resolved to reiterate the Board's request for a visit from Mr. Conlon and the Government Veterinary Surgeon.

**TIMBER.**—It was decided to ask the Director to make enquiries as to the suitability of Tasmanian timber for butter-boxes.

**Kettering, September 9 and October 6.***September 9.*

**PRESENT.**—**MESSRS.** G. A. Harrison (chair), J. Flakemore, R. Creighton, H. Grattidge, W. C. Blythe, W. Sweeney, G. Smith, W. J. Baldwin, W. Ims, Capt. Folder, and Mr. F. Hawker (Hon. Secretary).

**NEW MEMBER.**—Mr. W. Kloskey.

**FARRIERS.**—It was considered that farriers should know how to shoe all kinds of horses, and should pass an examination to show that they were qualified; those who passed to be allowed to use the word “certificated” in connection with their business. Members expressed the hope that the obligation to gain certificates would not result in an increase in the price of shoeing.

**EGG AND POULTRY EXHIBIT.**—A letter was read from the Director asking if any member of the Board would supply a dozen of eggs for the purposes of the Poultry Expert's exhibit at the Launceston show. As poultry matters did not engage much of their attention, members did not think they could render any assistance in the direction named.

**WAX MATCHES.**—It was thought by several that, as wax matches were indispensable in some parts of Tasmania (the mining fields in particular), their sale should not be restricted in any way.

**AGRICULTURAL CADETS.**—It was considered that the orchards in the district were scarcely large enough to make the employment of cadets desirable.

**IRISH BLIGHT.** Pamphlets on Irish blight, sent by the Department, were distributed among members.

*October 6*

**PRESENT.**—**MESSRS.** G. A. Harrison (Chairman), R. Creighton, W. Ims, W. J. Baldwin, C. Koslowski, Capt. Folder, and Mr. F. Hawker (Hon. Secretary).

**NEW MEMBERS.** **MESSRS.** F. Webster and H. Shepherd.

**SIZE OF CORN-BAGS.**—On the motion of Mr. Creighton it was resolved that the 3-bushel bag be adopted as the standard.

**ERADICATION OF FERNS.**—Resolved, “That this Board recommends cutting at the sprouting stage as the best means of eradicating ferns.”

**ELECTION OF OFFICERS.**—Chairman, Mr. Creighton; Treasurer, Mr. Harrison; Secretary, Mr. Shepherd.

**Kindred, September 11.**

**PRESENT.**—**MESSRS.** G. Medwin (chair), A. R. Polden, J. J. Filluel, T. B. Yaxley, T. D. Lewis, F. Granger, L. Vertigan, G. Weindorfer, F. Daniels, B. Weller, D. G. Cowle, and C. C. Polden (Hon. Secretary).

**NEW MEMBER.**—Mr. F. Daniels.

**LECTURES.**—It was decided that the Director be asked to allow the Horticultural and Dairy Experts to visit the district—the former to give a demonstration in pruning on September 27, and the latter a lecture on dairying during the evening of the same day.

**WAX MATCHES.**—Resolved, “That this Board does not favour the proposal of the Rubicon Board with regard to restricting the sale of wax matches.”

**FARRIERS' CERTIFICATES.**—As it was considered that very little advantage was likely to be gained thereby, it was resolved that no action be taken in regard to this matter.

**IMMIGRATION.**—Mr. Weindorfer's report on this subject was read, and ordered to be sent on to the Department as requested.

**SEEDS.**—The seeds forwarded by the Department were distributed among members.

**Lymington, September 6.**

**PRESENT.**—Messrs. J. Parnham (Chairman), F. Stanton, S. Cross, J. Christie, P. Cranney, W. Hornby, C. Devereaux, and T. Burnaby (Hon. Secretary).

**FARRIERS.**—Resolved, "That this Board is in favour of the proposal to grant certificates of competency to farriers."

**Mooreville Road, September 4.**

**PRESENT.**—Messrs. W. H. Spinks (Chairman), A. J. Spinks, J. Dodd, A. J. Redman, J. Connolly, and G. E. Russell.

**WAX MATCHES.**—Resolved, "That this Board is strongly opposed to the proposal to prohibit the sale of wax matches."

**SPARROWS.**—On the proposal of Mr. J. Connolly it was decided that the Director be requested to obtain the opinions of other Boards of Agriculture regarding the best means of dealing with the sparrow pest.

**Mount Pleasant, September 13.**

**PRELIMINARY.**—A meeting was held in the State School on the above date for the purpose of forming a Board of Agriculture in the Mt. Pleasant district. Among those present were:—Messrs. J. N. Propsting, J. Parker, W. J. Barwick, W. Johnson, W. Groves, C. Smith, C. Groves, A. J. Hall, C. Lodge, P. McAuliffe, C. F. S. Headlam, W. J. Hamilton, F. Cornish, A. Wilson, C. Barwick, W. Smith, W. Bush, H. Fletcher, G. Propsting, W. Howard, B. Morrison, and Miss Dean. The Warden (Mr. J. N. Propsting) was voted to the chair. Mr. Morrison addressed the meeting at some length on the benefits likely to accrue to farmers through the establishment of a Board of Agriculture in the district. The following motion was then carried unanimously:—"That a Board be formed, to be called the 'Mt. Pleasant Board of Agriculture.'"

**ELECTION OF OFFICERS.**—Chairman, Mr. J. N. Propsting; Secretary and Treasurer, Mr. B. Morrison.

**SUBSCRIPTION.**—The subscription was fixed at 2s. per annum.

**DATE OF MEETING.**—It was resolved that the meetings of the Board be held on the Saturday night preceding the full-moon.

**MEMBERSHIP.**—The following were enrolled as members:—Messrs. J. N. Propsting, J. Parker, W. J. Barwick, W. Johnson, W. Groves, C. Smith, C. Groves, A. J. Hall, C. Lodge, P. McAuliffe, C. F. S. Headlam, W. J. Hamilton, F. Cornish, A. Wilson, C. Barwick, W. Smith, W. Bush, H. Fletcher, G. Propsting, H. Howard, B. Morrison, D. Gregg, C. Gregg, E. Harding, D. Hamilton, and Miss Dean.

**New Ground, September 20.**

**PRESENT.**—Messrs. G. H. Parsons (chair), J. McGee, H. Bauld, C. Douglas, A. Lade, T. R. Addison, R. R. Douglas, and J. Thomas (Hon. Secretary).

**FARRIERS' CERTIFICATES.**—After considerable discussion the following resolution was carried:—"That this Board considers the granting of certificates to farriers unnecessary."

**EGGS FOR LAUNCESTON SHOW.**—This matter was left in the hands of the Secretary.

**WAX MATCHES.**—Members generally were not in favour of restricting the sale of wax matches, and a motion opposing the proposal was carried by a large majority.

**TREAT ON POTATOES.**—Members expressed the hope that the differences between merchants and agriculturists in connection with this question would be adjusted before next season. It was decided that the Director of Agriculture be requested to move in the matter.

**SEEDS.**—The seeds sent by the Department were gratefully accepted by members. The sugar-beet is sure of a good trial, and strawberry clover is already a favourite in the district.

### Nook, September 27.

**PRESENT.**—Messrs. Scott (Chairman), J. Aitken, R. Lunson, T. Thompson, H. Williams, and J. H. Lyons (Hon. Secretary).

**WAX MATCHES.**—Resolved, "That this Board concurs in the views of the Rubicon Board."

**CORN-SACK.**—The East Tamar Board's resolution in regard to corn-sacks was approved.

**SPARROWS.**—It was decided to recommend the use of poisoned grain as the best means of dealing with this pest.

**FERNS AND GUM SPROUTS.**—It was resolved to seek information from other Boards as to the most effective method of destroying ferns, also sprouts on gums, after firing.

**POULTRY EXPERT.**—It was decided to make application for a lecture by the Poultry and Pig Expert.

### Railton, September 18.

**PRESENT.**—Messrs. H. Priest (Chairman), Hoodless, Fraser, Tune, Maynard, P. H. White, Hamilton, Donovan, and J. Blenkhorn (Hon. Secretary).

**COTTON.**—Mr. D. Knowles sent a sample of cotton and seeds from Greenhill, Detention. It was decided to solicit the Department's opinion regarding them.

**LECTURES.**—It was decided to make application for lectures by the Fruit, Dairy, and Poultry and Pig Experts.

**FLAX.**—This subject was discussed at considerable length. The seed sent by the Department was examined by Mr. Harris (of Victoria), and pronounced to be the Riga variety, but a rather poor sample. The following gentlemen agreed to plant the seed, and were supplied with samples:—Messrs. Donovan, Hoodless, A. Hogg, Hamilton, Priest, E. Weeks, S. Maner, J. Bauer, Tune, J. Fraser, and the Secretary. It was considered that, apart from the fibre, the linseed was of great value for stock-feeding, and the following paper was read:—"Linseed-meal (commonly spoken of as oilcake) should have an important place in the economy of feeding. The higher the relative price of other grains, the more important is it that oilcake should be fed, at least in moderate quantities. One great advantage is that it has a beneficial effect upon the digestion, in addition to the nutrients it contains. Any food that tends to improve the digestion possesses an intrinsic value far above the value measured by the nutrients alone. The high feeding value of linseed-meal is well brought out by comparing its analysis with that of corn-meal. The following is the analysis of corn-meal:—Total dry matter, 85 per cent.; protein, 6.26; carbohydrates, 65.26; fat, 3.50. Linseed-meal by the new process has total dry matter, 90.1 per cent.; protein, 30.59; carbohydrates, 38.72; fat, 2.90. Thus linseed-meal has nearly five times the protein contained in corn-meal. Compared with corn the contrast is not so great, the protein in the corn itself being 7.14 per cent. The carbohydrates are 66.12 per cent., not far different from those in corn-meal, and the fat in corn is considerably more; that is, 4.97 per cent. The protein in linseed-meal, as compared with corn, is a little more than four times as much. From analysis, therefore, linseed-meal furnishes a superb food for all growing animals and for milch cows. But in all instances there is a limit beyond which it should not be fed, as owing to the considerable fat in it, there is a tendency to cloy the appetite. If given in excess to dairy cows there is a tendency to produce butter lacking in firmness. This must be kept in view, therefore, when feeding it to young animals."

and to dairy cows. Linseed-meal feeds excellently along with corn, furnishing an abundance of protein, in which the corn is lacking. Of course, in the advanced stages of fattening, large quantities of protein are not wanted, but a considerable amount is needed to balance the corn. But, in addition to the balance thus furnished, linseed-meal aids digestion by keeping in tone the digestive tract. The aim should be to feed 2 lb. or 3 lb. of linseed-meal daily per animal. It would seem safe to say that it would, in some instances, pay to give twice as much for the oilcake pound for pound as the other foods will cost. The aim should be to furnish the linseed without buying, if this can be done. It can be done by farmers who grow the food they feed on the farms. For instance, should they grow barley or speltz, or a mixture of grains, they can grow the linseed by sowing a few quarts of flax, not more probably than three or four with one or the other of these grains."

### Ridgley, September.

**PRESENT.**—Messrs. H. Morris (Chairman), J. Moore, J. Mathews, G. Jubb, W. Haygarth, and W. Morris (Hon. Secretary).

**VISITORS.**—Messrs. G. M. Haygarth (veterinary surgeon) and J. Hodgetts.

**FARRIERS' CERTIFICATES.**—The suggestion as to granting certificates of competency to farriers was approved.

**SPARROWS.**—The use of poison was considered the best means of destroying sparrows, whilst good results could also be obtained by netting. The mode of procedure in the latter connection is as follows:—A 4-foot net is secured to two high poles, one person taking the net along one side of a hedge at night while a companion goes along the other side with a lantern, and beats the hedge with a stick. It was suggested that a prize should be offered to the person catching the largest number of sparrows during the year.

**CORN-SACKS.** It was stated that the Federal Government was now investigating this matter. It was resolved that any support needed should be given by the Board.

**WAX MATCHES.**—Members did not favour the proposal to prohibit the sale of these matches. On the motion of Mr. W. Morris it was decided to suggest that the Rubicon Board's resolution be amended to read as follows:—"That municipal councils be granted power to prohibit the sale of wax matches if considered dangerous at any time."

### Rubicon, September 25.

**PRESENT.** Messrs. W. A. Skirving (chair), J. A. Spicer, W. Fair, R. Bennett, T. Radford, A. Radford, W. McNear, T. O'Neill, P. Costello, C. Archer, L. von Bibra, H. E. Walker, H. Slater, W. Hegar, T. Flowers, S. Burgess, J. Hewitt, J. Steward, J. Shelton, T. Bonnilly, I. Stevens, and C. Seaton (Hon. Secretary).

**VISITOR.**—The Director of Agriculture (Mr. A. H. Benson).

**ADDRESS BY THE DIRECTOR.**—Mr. Benson addressed the meeting. He said it gave him great pleasure to meet such a large number of farmers, who prominently represented the district, and who seemed so much alive to the agricultural and dairying pursuits. He would endeavour to make them understand many matters in the farming industry, and also answer any questions to the best of his ability, which he hoped would be beneficial to their several interests. Mr. Benson's remarks were listened to with much interest and appreciation, and the following motion was carried unanimously:—"That the best thanks of members be given to Mr. Benson for his able address and assistance."

**Scottsdale, October 3.**

**ELECTION OF OFFICERS.**—Mr. J. B. Hayes was elected Chairman for the ensuing year. The Secretary having resigned, and there being no candidates for the vacancy, the Chairman undertook the office in order to prevent the movement falling through.

**CHAIRMAN'S ADDRESS.**—The Chairman, in addressing the meeting, pointed out that the only way to obtain the benefits that the Department offered was through the medium of District Boards of Agriculture; and as the Department was now thoroughly organised, he thought it was desirable that farmers should share its advantages.

**ACCOUNTS.**—The Treasurer's statement showed a small credit balance.

**Scottsdale West, September 13.**

**ATTENDANCE.**—Nine members were present.

**NEW MEMBERS.**—Messrs. W. Briggs and J. Easterbrook.

**WAX MATCHES.**—A motion supporting the proposal to prohibit the sale of wax matches was carried unanimously.

**FARRIERS' CERTIFICATES.**—It was considered by all present that every farrier should be compelled to hold a certificate of competency.

**BITTER PIT.**—The questions submitted by the Department were considered. Mr. Holmes, who is a very successful orchardist, gave his views on the subject, and the questions were answered as follows:—(1) The varieties most affected are New York Pippin, Sturmer, and French Crab. (2) On all classes of soil. (3) No experience, as all land here is naturally well drained. (4) On those of luxuriant growth. (5) More noticeable on trees severely pruned. (6) Not answered. (7) Heavy manuring seems to render the trees more liable to the disease. (8) Not answered. (9) Rain in summer during growth favours the disease.

**SEEDS.**—The seeds sent by the Director for experimental purposes were distributed among members.

**Sheffield, September 18.**

**PRESENT.**—Messrs. H. Smith (chair), G. Lord, E. Strawberry, A. Hammant, I. Tyler, T. Cruickshank, W. Kirkcaldy, and O. Ridley (Hon. Secretary).

**MANURES.**—It was resolved that the figures in connection with the analysis of manures, together with their comparative values, should be published in an early issue of the "Gazette," so that farmers might have the information before seeding time.

**VOTE OF CONDOLENCE.**—A vote of condolence was passed to the relatives of the late Mr. W. R. Jones, who was one of the first members of the Board, and one of the most successful farmers in the district.

**SEED.**—The seeds sent by the Department were distributed among members.

**FARRIERS' CERTIFICATES.**—The proposal to grant certificates to farriers was approved.

**EGGS FOR LAUNCESTON SHOW.**—Messrs. H. Smith and H. Hammant each promised to send a dozen of eggs for use in connection with Mr. Terry's exhibit at the Launceston show.

**WAX MATCHES.**—Resolved, "That this Board is not in favour of the proposal to prohibit the sale of wax matches." In the discussion on this subject members, whilst recognising the danger of using wax matches in agricultural districts in summer, were of opinion that they were such an essential in mining districts as to make it undesirable to prohibit their sale in Tasmania.

**St. Helens, September 26.**

**PRESENT.**—Rev. J. Travers (chair), Messrs. T. Haley, G. H. Briggs, C. M. Fairclough, H. Grant, W. Thompson, Dr. Smellie, and Mr. C. R. Bowling (Hon. Secretary).

**CORN-SACKS.**—Resolved, "That this Board is in accord with the movement to urge the Federal Government to introduce legislation to secure uniformity in the size of corn-sacks." Members favoured the adoption of the 3-bushel bag as the standard.

**CAPE WEED.**—The Secretary was deputed to interview the Warden, and request that the Cape weed at present growing upon the streets be removed.

**WATER SCHEME.**—This subject was discussed at length, and a committee, consisting of Messrs. T. Haley, H. Grant, and Dr. Smellie, was appointed to go into the matter, and report at the next meeting of the Board.

**NEW SANITARY SYSTEM.**—The delay in adopting the new system was discussed, and Mr. W. Thompson was asked to point out to the municipal council the necessity for expeditiously putting the system into operation.

**St. Marys, September 16.**

**PRESENT.**—Dr. Harrison (chair), Messrs. P. Becker, J. Lohrey, McDermott, and Col. Legge (Hon. Secretary).

**BITTER PIT.**—This not being a fruit district, members were not aware of the nature of this disease. The Secretary said it was very prevalent in the fruit districts in the South, and was considered one of the most serious diseases that orchardists have to contend with. The general opinion among those present was that bitter pit was non-existent in the St. Marys district. The Chairman said that he thought the Director was quite right in considering this question was very important. He alluded to the good quality of the fruit in Western Australia, and did not think that that State was much troubled with bitter pit. The Secretary also referred to the question as being one of the most vexed ones occupying the minds of orchardists—as to its cause and cure—and spoke of Mr. Osborne's researches into and lectures on the disease, mentioning, *inter alia*, that Mr. Osborne had referred to it in the description of his tour through Western Australia some little time ago.

**FARRIERS' CERTIFICATES.**—Members were unanimously of opinion that the granting of certificates (after examination) to farriers would be a step in the right direction. The Chairman said there was a good deal of faulty shoeing perpetrated by present-day farriers, and the Secretary in his remarks alluded to the practice which used to be prevalent of cutting into the "frogs," and so weakening the arch supporting the hoof.

**BULLETINS.**—Bulletins on "Irish Blight," "The Dairy Industry," &c., were distributed among members.

**Stoodley, October 10.**

**PRESENT.**—Messrs. W. Bannon (Chairman), W. Scanlon, G. Lehman, J. Cooke, J. Collins, W. Scanlon, Jun., T. Tyler, G. Nolan, and J. Leo (Hon. Secretary).

**WAX MATCHES.**—Members favoured the proposal to prohibit the sale of wax matches.

**FARRIERS' CERTIFICATES.**—It was considered that farriers should be compelled to pass a qualifying examination, so that young horses would not be liable to injury at the hands of incompetent men.

**SPARROWS.**—Spreading poisoned grain was considered the best means of combating this pest.

**ERADICATION OF FERNS.**—Members generally were of opinion that frequent ploughing was the most effective method of eradicating ferns.

**SEEDS.**—Seeds of several varieties of grass and pulse were distributed among members.



**Stowport, September 11.**

**PRESENT.**—Messrs. W. A. Carruthers (Chairman), W. Rutherford, T. Atkinson, Jun., W. Viney, W. Jennings, J. R. Howe, M. Smith, and J. G. Pearson (Hon. Secretary).

**FARRIERS.**—The proposal to grant certificates of competency to farriers was approved.

**WAX MATCHES.**—Resolved, "That this Board does not consider it advisable to take any action in this matter." Members generally were of opinion that the use or disuse of these matches should be left to the discretion of individual users.

**SEEDS.**—The seeds sent by the Department for experimental purposes were distributed among members. Mr. W. Jennings, in moving a vote of thanks to the Director (which was passed unanimously), said that it was evident the Department was now working on right lines, and would in the future be of practical benefit to the farmers.

**Table Cape, September 9.**

**PRESENT.**—Messrs. J. T. Johnson (chair), J. T. Ramskill, B. Bramich, W. Medwin, W. F. Miller, G. Gates, Bonhote, Capt. Thomson, and Mr. H. J. Smith (Hon Secretary).

**FARRIERS' CERTIFICATES.**—The Director's letter on this matter was discussed, and it was resolved to answer all three questions in the affirmative; provided that provision be made to enable farriers to submit themselves for examination if they so desire.

**EGGS FOR LAUNCESTON SHOW.**—It was resolved that the matter of procuring the eggs and forwarding the same in terms of the Director's letter be left in the hands of the Secretary.

**NEW MEMBER.**—Mr. Bonhote.

**SEEDS.**—The Secretary reported that the seeds sent by the Department had been distributed among members.

**Tyenna.**

**PRESENT.**—Messrs. F. Brown, Lord, A. Quarrell, P. Marriott, C. Brown, A. Marriott, S. Roberts, A. Sharp, J. Burnley, D. Marriott, B. Burnley, H. Abbott, and F. M. Smith (Hon. Secretary).

**NEW MEMBER.**—Mr. J. Belcher.

**SEED.**—Several varieties of grass and fodder seeds were received from the Department, and distributed among members.

**FARRIERS' CERTIFICATES.**—After discussion it was resolved to recommend that farriers should be examined by a veterinary surgeon as to their knowledge of bushing, over-reaching, corns, &c., and if adjudged competent, to be allowed to use the term "certificated" in connection with their business.

**POULTRY EXHIBIT.**—Mr. D. Abbott intimated his readiness to send a collection of eggs for the poultry exhibit at Launceston in October.

**WAX MATCHES.**—Owing to the difficulty in keeping safety matches dry in this district, members did not favour the proposal to prohibit the sale of wax matches.

**ADVANCES TO SETTLERS.**—Mr. Brown considered the Government should lend money to settlers on the same terms as obtained in New Zealand, plus 1 per cent. for working expenses and 1 per cent. for a sinking fund. This view was endorsed by other members. The general opinion of those present was that the valuation fee was too high. It was stated that one or two settlers who have borrowed under the present Act paid valuation fees to the amount of £5, which, together with 6 per cent. on money loaned, meant 11 per cent. for the first year. After further discussion it was decided to bring the matter under the notice of the Director.

**Upper Flowerdale, August 26.**

**PRESENT.**—Mr. S. P. Reilly (Chairman), W. A. Hope, C. Tucker, A. W. Stuart, V. Smith, H. Whiley, H. Mezger, and J. A. Smith (Hon. Secretary).

**IMMIGRATION.**—Messrs. S. P. Reilly, H. Whiley, A. W. Stuart, and J. A. Smith were appointed a committee to supply the information required by the Department.

**TRET ON POTATOES.**—The practice of making a deduction for tret is not usual in this district, the custom being for merchants to pay on the weigh-bridge ticket. Mr. Hope suggested that, although a charge was not made for tret in this district, it might nevertheless help other districts if members were to record their disapproval of the system. Other members spoke in the same strain, and it was eventually resolved, "That as growers are now so careful in picking over their potatoes, this Board considers it unfair that merchants should continue to make a deduction for tret; and, further, is prepared to join with other Boards in forwarding a protest to the Merchants' Association against the continuance of such a practice."

**FARRIERS' CERTIFICATES.**—After a long discussion, during which it was pointed out that ordinary competition will ensure careful treatment by the average blacksmith, and thus make them do their work as well as if they were certificated, it was resolved, "That this Board does not favour the granting of certificates of competency to farriers." It was contended that the compulsory holding of certificates would mean increased expenditure to the State.

**ELECTION OF OFFICERS.** Chairman, Mr. S. P. Reilly; Secretary, Mr. J. A. Smith.

**Wattle Grove, September 27 and October 3.**

*September 27.*

**FARRIERS' CERTIFICATES.** In the discussion on this subject it was pointed out that although the head of a farrier's establishment might hold a certificate, that fact would not prevent unqualified persons from shoeing. It was also pointed out that a certificated farrier would probably charge more than one who was without a certificate.

**WAX MATCHES.**—It was considered that the damage done by wax matches was not in proportion to the drastic remedy proposed. Members therefore did not favour the suggestion that their sale should be prohibited.

**APPLE SHIPMENTS.**—It was decided to request the Director to solicit the opinions of other Boards as to the best means to be adopted for preventing damage to fruit after leaving the grower's hands. At present, no matter how carefully it is packed, it is invariably bruised whilst being transferred from the steamer to the wharf.

*October 3.*

**PRESENT.**—Messrs. E. Baldwin (Chairman), W. C. Jones, F. Leitch, T. Wilson, W. Schultz, H. W. Smith, W. Schultz, Jun., Bender, and K. Lord (Hon. Secretary).

**NEW MEMBER.**—Mr. Bender (Lower Wattle Grove).

**DELEGATE'S REPORT.**—Mr. E. Baldwin, as the Board's relegate, gave a resume of the proceedings at the conference arranged by the Tasmanian Fruitgrowers' Union in connection with the correct naming of apples and pears.

**PAPER.**—Mr. Jones read a very interesting paper dealing with the cost of producing a bushel of apples under average conditions.

## NORTH ESK. PRODUCERS' UNION.

September 4.

**PRESENT.**—Messrs. W. M. Boutflower (Chairman), E. Caswell, F. Caswell, H. Stapleton, E. Young, H. Young, and three visitors.

**NEW MEMBERS.**—Messrs. W. Caswell, W. Fysh, and J. C. Newton.

**FARRIERS.**—Members were unanimously of opinion that the suggestions with regard to farriers, if carried out, would be most beneficial to the entire community.

**RAPE, MILLET, &c.**—It was resolved to apply to the Department for information and advice on the following matters:—(1) The quantity of rape seed which should be sown to the acre. (2) Would Japanese millet be likely to thrive in Tasmania? (3) Which is the most suitable maize for general use in Tasmania, and the best way of growing it? (4) Can melilot be grown with advantage in the interior of Tasmania? [(1) Drilled, 3 to 4 lb.; broadcasted, 5 to 6 lb. (2) No. (3) Maize-growing for grain would not prove profitable in Tasmania. Maize for ensilage can, however, be grown on deep, rich soils, but planting must not be commenced until all danger of frost is past; also the land must be well and deeply worked. Planting in drills—4 feet apart—is to be preferred to broadcasting. Hickory King is about the best variety to grow, and a gallon of seed is sufficient to plant an acre. (4) There are other leguminous plants better suited to the climate.—Ed.]

**POULTRY EXPERT.**—Resolved, "That application be made for a visit from the Poultry Expert at an early date."

## EAST TAMAR PRODUCERS' ASSOCIATION.

September 11.

**ATTENDANCE.**—About 30 members were present, including Mr. F. M. Littler, who was welcomed as a visitor by the President.

**NEW MEMBERS.**—Four new members were elected.

**SOCIAL.**—The social committee reported that it expected to hold a social evening of members and lady friends before the date of next meeting.

**SHOW.**—The show committee intends to begin organisation work next month.

**BITTER PIT.**—On the subject of bitter pit in apples, nine questions were submitted to members by the Department. The matter being one of vast importance, the Director's letter was referred to a special committee, which was instructed to bring up a report for next meeting.

**POULTRY EXHIBIT.**—Several members present evidenced their interest in the poultry industry by readily promising to send parcels of eggs for exhibition, as requested by the Director.

**WAX MATCHES.**—Messrs. Clare, Kidd, Bunting, and others supported the proposal to prohibit the importation or sale of wax matches. Each speaker referred to the great danger arising from their use, even with ordinary care. On the motion of Mr. Clare the following resolution was carried:—"That this Association gives its support to the proposal to introduce legislation to prohibit the sale of wax matches in Tasmania."

**CO-OPERATION.**—The following motion, moved by Mr. C. White, was unanimously agreed to:—"That the directors of the North-Western Produce-selling Agency be written to requesting it to consider the advisability of enlarging its scheme of co-operation so as to take in the whole of Northern Tasmania; and that it call a meeting in Lanuceston during show week to explain to producers the economical advantages to be gained by supporting, as a solid body, the co-operative system of selling and buying."

**IRISH BLIGHT.**—Pamphlets on Irish blight were distributed to members.

**SEEDS.**—The seeds sent from the Department of Agriculture for experimental purposes were shared amongst members, the Director's action winning much favourable comment.

**SKINLESS OATS.**—A sample of the "skinless oat" was submitted by Mr. Lamont. This oat is ready for grinding into oatmeal without hulling. It was explained that the Agent-General had at Mr. Lamont's request obtained and forwarded a small quantity at a very high rate of cost. The reproduction of this novelty is eagerly awaited.

**LECTURE.**—Mr. R. J. Sadler, M.H.A., introduced Mr. Littler, who had attended by arrangement to give his lecture on "Insects. Beneficial and Injurious." Mr. Littler treated his subject in a masterly and lucid manner, and, aided by his boxes of specimens, gave very valuable information to his hearers on the habits, &c., of the various varieties, commencing with the everyday cockroach, on to the ichneumon, the bloodthirsty gadfly, and the underground grubs, not forgetting the caterpillar and the codlin moth. The address was frequently applauded, and members at its close had many questions to ask, all of which were fully explained by Mr. Littler, who offers his advice and opinion freely to all seeking them at any time.

## TAMAR FARMERS' AND FRUITGROWERS' ASSOCIATION.

*September 27.*

**ATTENDANCE, &c.**—The annual meeting of the above Association was held at Exeter on the above date, when there was a good attendance of members. The President (Mr. Steel Trail) occupied the chair.

**ANNUAL REPORT.**—Following are some excerpts from the annual report:—In presenting the first annual report of the Tamar Farmers' and Fruitgrowers' Association, your committee is pleased to be able to record a successful year's operations. The first matter to engage its attention was the primary one for which the Association was formed, viz., the holding of an annual autumn show. Your committee spared no effort in organising the show in order that the resources of the Tamar Valley districts might be effectively advertised, and it is very gratifying to record that the business communities of Launceston and elsewhere, and those engaged on the land, gave most encouraging support. . . . Much credit is also due to Mr. W. J. Southerwood for valuable assistance rendered. . . . The success which attended the initial show was striking evidence of the great advantage of concentration and combined effort, and there is no doubt the successful inauguration of this exhibition will mark an epoch in the history of the Tamar districts. . . . Wishing to infuse a greater interest in the work of the Association, your committee suggested affiliating with the Department of Agriculture, and many subjects affecting the interests of producers have been discussed. Amongst the most important are the desirability of relieving young orchards from the codlin moth tax for the first three years after planting, and your President was successful in carrying a motion in favour of this at a most representative conference of growers held in Launceston last June, under the auspices of the Department of Agriculture. Co-operation amongst producers has received some attention, and as a result of some suggestions embodied in a paper read before a general meeting of members last month, a meeting is being convened by the secretary of the Northern Fruitgrowers' Association, which will be representative of districts for which Launceston is the centre, in order that this question may be thoroughly discussed, and some definite co-operative action decided upon. More will be heard of this in the near future. Your committee has taken an active interest in the immigration question, and has brought several useful suggestions before the Director.

**BALANCE-SHEET.**—Receipts, £231 14s.; expenditure, £229 11s. Allowing for value of material and "cash on hand," the Association has a credit balance of £25.

**PRESIDENT.** Mr. W. Gowans was elected President for the ensuing year.

## NORTH-WESTERN FRUITGROWERS' ASSOCIATION.

**PRESENT.**—Messrs. C. A. Stackhouse (President), A. G. B. Keene, H. Powell, C. Sheedy, H. Smith, E. C. Gardiner, L. Levy, K. Roberts, Roedman, and the Secretary (Mr. C. Wallis).

**ANNUAL REPORT.**—The President submitted his annual report, which stated that the meeting should have been held during the month of August, but owing to the unavoidable absence of the President from town it had to be postponed. Necessarily with such a young Association, combined with the fact of the industry being in its infancy here, the scope for action had not been large; still something had been done, and he ventured to think that the Association had at least justified its existence. At the end of last year the resignation of the Secretary, Mr. W. E. Sadlier, was received with regret, he having decided to leave the town. The committee, however, had the good fortune to secure the services of Mr. Chas. Wallis, the present Secretary, who agreed to accept office in an honorary capacity for 12 months. Mr. Wallis had also kindly allowed the committee the use of his office free of charge. The Association had become affiliated with the Department of Agriculture, and now participated in whatever advantages accrue thereby, not the least being the receipt by every member of the "Agricultural Gazette." Members were thus kept in touch with the latest methods in fruit-growing, and also in the agricultural and pastoral industries. The arrangements for the periodical visits of the Government Fruit Expert were now under the control of the Association, so far as this district was concerned. At the last demonstration given by Mr. Osborne there were 45 persons present, thus showing the increasing interest in fruit-growing. It was very satisfactory to note that in and around Devonport and Latrobe this season over 30,000 trees had been planted. The orchardists had gone on their way quietly and solidly, and there were no boom plantations. The work accomplished would be a revelation to many. The question arose whether it would not be desirable now or in the near future to take some measures whereby their orchard land, which was unsurpassed in the State, might become more widely known. During the year the Association made an exhibit of fruit at the Ulverstone autumn show. At a local fruit and flower show the Association also exhibited, as did Messrs. Keene and Keene and many others in the district. Messrs. Keene and Keene's exhibit was a very fine one, and possibly the combined display could not have been excelled in the State; in fact, that was the opinion of some very competent judges. The committee had been in communication with the municipalities of Devonport and Latrobe, through their respective wardens, on the subject of the codlin moth tax, and it was expected that the result would be of considerable advantage to orchardists generally. During the month of March, all members of the Association were advised by letter that if they desired to appeal against their assessments, the Secretary would, on receipt of full information, conduct the appeals free of cost. The matter of the Association stocking orchardists' requirements had been fully discussed during the year, but was not found to be possible at that time, the feeling being that the committee would rather arrange with some local firm for special rates, and consider it in detail at the general meeting. The committee tried before the commencement of the exporting season to arrange for a concession in freights, &c., but was unsuccessful. However, there was good reason to hope that for the ensuing season they would be on

the same footing as the Northern orchardists for interstate shipments. So far as Government carriage was concerned, all parts of the State were treated alike. If the Association were to keep on, it would be necessary for more orchardists to join the Association, as the money that had been collected was not sufficient to meet the trifling expenses incidental to its existence.

**ORCHARD INSPECTION.**—The Secretary reported that he had interviewed the Warden regarding the inspector paying a visit to the orchards in the district. Mr. McFie promised that the matter would be attended to, and the inspector had been instructed to furnish a list of orchards in the district, with comments thereon.

## THIRD TASMANIAN EGG-LAYING COMPETITION.

THE following is the progress report for the fourth month of the third egg-laying competition conducted at the Springvale Tea Gardens, New Town:—

	Month of Sept.	Total
1. White Leghorns, F. Hart, New Town ... ..	138	465
2. White Leghorns, A. G. Genders, Launceston ... ..	114	381
3. Silver Wyandottes, H. R. Taylor, Launceston ... ..	117	361
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	128	382
5. White Wyandottes, A. G. Genders, Launceston ... ..	115	424
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	140	445
7. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	144	410
8. White Leghorns, Williams Bros., Fingal ... ..	138	358
9. White Leghorns, Briggs & Son, Longford ... ..	134	419
10. Silver Wyandottes, W. T. Stephens, Beulah ... ..	138	444
11. White Wyandottes, Rust Bros., Claremont ... ..	114	378
12. White Leghorns, R. J. Sheriff, Hagley ... ..	125	387
13. Black Orpingtons, G. Gilham, Launceston ... ..	133	271
14. White Leghorns, J. J. Harvey, Riana ... ..	126	284
15. White Leghorns, Mrs. B. Whittle, Launceston ... ..	128	362
16. R.C. Brown Leghorns, Briggs & Son, Longford ... ..	129	343
17. White Leghorns, A. Dickenson, South Bridgewater ... ..	123	385
18. White Leghorns, Reid & Stride, Liverpool-st., Hobart ... ..	139	434
19. White Leghorns, S. Ellis, Botany, N.S.W. ... ..	120	352
20. R.C. Black Orpingtons, W. T. Stephens, Beulah ... ..	149	238
21. Buff Orpingtons, A. G. Genders, Launceston ... ..	108	398
22. White Leghorns, O. H. Olson, Karoola ... ..	135	430
23. Black China Langshans, S. Ellis, Botany, N.S.W. ... ..	108	247
24. White Orpingtons, E. E. Roberts, Franklin ... ..	117	343
25. White Leghorns, Mr. B. Whittle, Launceston ... ..	142	458
26. White Leghorns, L. J. Dowling, Devonport ... ..	139	356
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ... ..	121	391
28. White Leghorns, J. Crisp, Launceston ... ..	135	428
29. White Leghorns, F. A. W. Gisborne, Risdon-road ... ..	133	424
30. S.C. Brown Leghorns, W. H. Hale, Strahan ... ..	144	440
31. White Leghorns, Mrs. Luke Williams, Moonah ... ..	139	414
32. Black Orpingtons, A. Batton, Launceston ... ..	144	467
33. White Leghorns, A. Terry, Sea View Hotel, Burnie ... ..	139	484

## METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING SEPTEMBER, 1911 AND 1910.

\* Telegraphic only.

Station.	1911.	Wet Days.	1910.	Average.
<b>NORTHERN.</b>				
Marrawah ... ..	139	9	681	529
Cape Grim ... ..	—	—	603	346
Smithton ... ..	204	19	—	—
Sunny Hills ... ..	—	—	777	—
Irish Town ... ..	228	17	892	—
Black River ... ..	155	12	645	428
Stanley ... ..	168	15	560	311
Flowerdale ... ..	178	8	692	—
Flowerdale Upper ... ..	263	12	752	710
Yolla ... ..	373	20	792	755
Wynyard ... ..	236	17	629	—
Burnie ... ..	226	15	665	384
Ridgley ... ..	264	14	721	—
Ulverstone ... ..	281	11	673	432
Kindred ... ..	312	17	736	—
Devonport ... ..	198	17	548	379
Latrobe ... ..	—	—	545	395
Norlown ... ..	227	15	507	273
Beaconsfield ... ..	242	14	674	—
Low Head ... ..	203	15	423	249
Black Bluff ... ..	564	21	1121	—
Moina ... ..	445	23	989	—
Central Castra ... ..	344	15	750	510
Wilmot ... ..	353	17	725	—
Gawler ... ..	243	11	616	475
Sheffield ... ..	393	16	659	—
Deloraine ... ..	—	—	587	383
Caveside ... ..	313	19	524	—
Cressy ... ..	134	13	408	221
Longford ... ..	169	17	425	221
Westbury ... ..	235	15	499	335
Westbury State School ... ..	—	—	498	—
Carrick ... ..	204	16	451	—
Launceston ... ..	205	15	536	299
Glengarry ... ..	214	14	650	401
Frankford ... ..	295	17	668	432
Exeter ... ..	179	13	601	—
Lilydale ... ..	—	—	769	405
St. Patrick's River ... ..	466	22	802	—
Springfield ... ..	399	26	721	551
Springfield South ... ..	—	—	741	—
Scottsdale ... ..	286	20	530	428
Branxholm ... ..	501	23	610	—
Ringarooma ... ..	446	17	630	630
<b>WEST COAST—MOUNTAIN REGION.</b>				
Whale Head ... ..	—	—	536	—
Mt. Balfour ... ..	—	—	985	—
Magnet ... ..	426	9	1125	—
Waratah ... ..	504	26	1146	877
Que ... ..	432	18	—	—
Tullah ... ..	397	17	—	—
Benison Bell ... ..	430	18	—	—
Mt. Read ... ..	710	22	1294	994
Chester ... ..	406	22	—	—
Dundas ... ..	500	20	—	—

## RAINFALL--continued.

Station.	1911.	Wet Days.	1910.	Average.
Zeehan ... ..	507	18	1235	901
Mt. Lyell ... ..	475	16	1352	1066
Queenstown ... ..	433	14	1054	—
Strahan ... ..	278	12	737	530
Cape Sorell ... ..	*225	—	700	461
Pillinger ... ..	319	11	820	—
CENTRAL PLATEAU.				
Great Lake ... ..	—	—	—	295
Circle ... ..	253	19	648	—
Roscarboro ... ..	139	15	497	—
Clarence ... ..	—	—	933	—
Bronte ... ..	257	17	642	—
Steppes ... ..	126	7	417	—
McGuire's Marsh ... ..	143	10	506	—
Woods' Quoin ... ..	151	18	628	—
Interlaken ... ..	—	—	380	314
Dog's Head ... ..	189	13	417	—
DERWENT VALLEY.				
Glenmark ... ..	—	—	630	—
Strickland ... ..	—	—	662	—
Bashau ... ..	—	—	691	373
Osterley ... ..	162	10	626	—
Bothwell ... ..	108	16	361	176
Cleveland ... ..	—	—	722	—
Hamilton ... ..	90	12	338	177
Ellendale ... ..	247	16	768	402
Glenora ... ..	124	12	327	213
Belmont ... ..	—	—	222	147
Clarendon ... ..	76	8	244	196
New Norfolk ... ..	103	12	327	212
Uxbridge ... ..	172	11	530	375
Lachlan ... ..	92	5	334	259
SOUTH-EASTERN.				
Ramsgate ... ..	—	—	507	—
South Bruni ... ..	*165	—	573	340
Adventure Bay ... ..	193	12	626	—
Southport ... ..	*202	—	573	353
Lunnawanna ... ..	114	6	399	—
Port Esperance ... ..	—	—	506	370
Port Cygnet ... ..	125	10	475	—
Petchey's Bay ... ..	162	15	452	—
Middleton, Channel ... ..	124	13	466	—
Kettering ... ..	173	16	641	—
Franklin ... ..	226	9	—	365
Kingston ... ..	136	14	—	—
Mt. Nelson ... ..	117	8	442	206
Mt. Wellington (Gap) ... ..	373	—	760	520
The Springs ... ..	423	19	797	541
Hobart Observatory ... ..	120	15	402	210
Hobart Botanical Gardens ... ..	100	12	384	190
Hobart Waterworks ... ..	170	14	579	319
Glenorchy ... ..	*119	—	376	240
New Town ... ..	—	—	—	217
Bellerive ... ..	78	13	376	200
Lindisfarne ... ..	91	10	378	—
Rokeby ... ..	*67	—	348	180
Sandford ... ..	—	—	298	196
Premaydena ... ..	129	6	276	214
Carnarvon ... ..	224	16	453	316
Sorell ... ..	155	14	277	175
Cambridge ... ..	—	—	265	139



## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Craigow .....	—	—	239	—
Richmond .....	102	10	293	159
Brighton .....	87	11	370	175
Tea Tree .....	97	7	285	—
Bagdad .....	127	11	403	184
Broadmarsh .....	125	13	350	—
Kempton .....	95	10	226	156
Colebrook .....	143	14	—	—
<b>MIDLAND.</b>				
Spring Hill .....	99	14	258	181
Jericho .....	75	70	268	—
Mt. Seymour .....	—	—	341	220
Oatlands .....	118	23	309	174
Bow Hill .....	—	—	400	—
Andover .....	109	9	212	215
Woodbury .....	92	12	268	—
Beaufront (Ross) .....	159	10	275	145
Bendeemer .....	237	16	456	282
Glen Connell .....	—	—	371	255
Campbell Town .....	168	14	393	183
Hanleth .....	290	13	425	201
<b>EAST COAST.</b>				
Kellevie .....	—	—	477	—
Buckland .....	128	13	415	—
Triabunna .....	142	10	468	236
Louisville .....	135	16	—	—
Swansca .....	234	19	412	178
Riversdale .....	227	14	445	189
Cranbrook .....	189	12	492	202
Lake Leake .....	265	18	568	247
Ormsley .....	228	13	381	197
Fingal .....	217	7	355	197
Cullenswood .....	333	20	420	228
St. Marys .....	568	16	564	—
Tower Hill .....	405	15	555	—
Mathinna .....	*359	20	532	244
Scanmader .....	522	13	377	218
St. Helens .....	530	19	523	243
Gould's Country .....	759	20	705	401
Lottah .....	790	24	871	629
Eddystone Point .....	*249	—	560	285
Boobyalla .....	143	16	349	—
<b>KING ISLAND.</b>				
Cape Wickham .....	307	20	427	273
Yambacoon .....	—	—	449	278
Currie Harbour .....	209	22	571	—
Monk Breton .....	—	—	557	—
Surprise Bay .....	205	22	506	—
The Chalet .....	—	—	521	—
<b>FLINDERS ISLAND.</b>				
The Hermitage .....	377	19	262	—
Thule .....	382	15	317	235
White Mark .....	339	13	268	—
<b>OTHER ISLANDS.</b>				
Kent Group .....	—	—	316	—
Goose Island .....	—	—	284	178
Cape Barren Island .....	—	—	454	—
Swan Island .....	138	11	310	—
Maatsuyker Island .....	—	—	486	313

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# The Agricultural Gazette of Tasmania.

EDITED BY L. A. EVANS.

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## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

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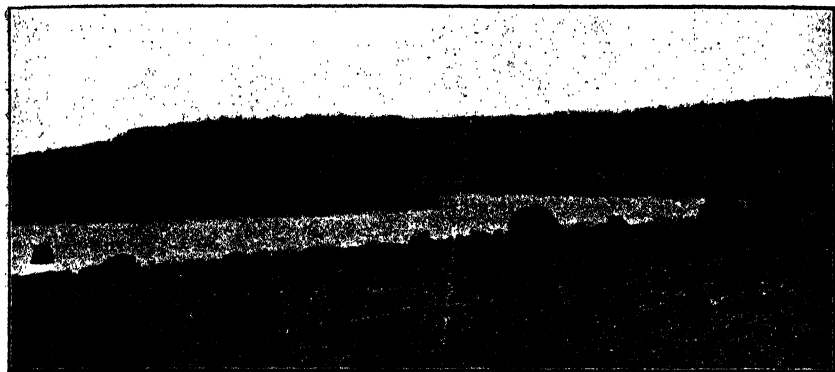
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NOVEMBER, 1911.

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## DIGESTION AND ASSIMILATION.

IT is interesting to note that the food of plants is composed of the very simplest of materials. As Groom says, plants are "highly æsthetic in their requirements: water, nitric acid, and a few salts, together with the elements of the atmosphere, are worked up with the aid of sunlight into most elaborate compounds."

An animal is distinctly epicurean in its tastes when the materials satisfying plants are compared with what it selects.

The solid matter of what an animal consumes may be classed as follows:—

- (1) Albuminoids or flesh-formers.
- (2) Fats.
- (3) Carbohydrates.
- (4) Salts.

Albuminoids— or proteids, as they are sometimes called—contain nitrogen, and from those assimilated in the vegetable matter or grain consumed by the animal are formed muscle, nerves, hair, wool, horn, &c. When more albuminoids are consumed than required, the balance may be stored up as fat. By the combustion of the albuminoids in the body heat and mechanical force are developed. This class of food, it will be seen, is capable of supplying all the wants of the animal, which cannot be said of any other food constituent. There is also a kind of half-way albuminoids, called amides, which, of course, contain nitrogen.



These cannot take the place of albuminoids as muscle-formers, &c., but by combustion they protect the albuminoids from waste and produce force and heat.

The fats stand out as heat and force producers.

The following table shows the relative heat and force producing power of equal weights of the various foods:—

Fat ... ..	229
Albumen ... ..	107
Starch ... ..	100
Cane sugar ... ..	97
Grape and milk sugar ... ..	90

No other ingredient of a food can equal fat in respect to producing force and heat. It is recorded by Arctic explorers that the Esquimaux in the Polar regions were not tempted by sweets, but it was soon found necessary to lock up the tallow candles.

It appears from observation that animals are capable of selecting certain fats in a food for storing up, and even of transforming one kind of fat into another. When any excess of fat is consumed over that required for producing heat and mechanical energy, it is stored up as a reserve material.

Carbohydrates consist of carbon and the elements of water. They are mainly represented by starch, sugar, and cellulose, the lastnamed being the constituent part of the cell-walls of vegetables. Like fats, this class of material cannot add to the nitrogenous tissues of the body, but forming, as they do, the largest part of all vegetable foods, they are eminently adapted, when oxidised in the animal system, for producing heat and force.

The remaining constituent in a food is represented by the ash, which is in a form ready to be assimilated after digestion if the animal is in want of it.

The phosphates and carbonates form the largest portion of the bones. When, after years of grazing, pastures become depleted of their phosphates, animals (it is recorded) will chew bones to get the necessary salts lacking in the pastures.

Having briefly indicated the proximate constituents of foods, we may proceed to mention the various agents which render them into a form capable of absorption by the animal tissues.

Wide differences occur in the animal world as to the manner in which the solid constituents of food are converted into a form suitable for assimilation. In the case of the sheep and the ox, the digestive process is prolonged, according to the period the food remains in the paunch, whereas no such delay occurs with the horse and the pig. The first action towards digestion is the mechanical process by which the material eaten is broken down to a soft pulp and mixed with the secretions of the salivary gland. Saliva contains an enzyme, or chemical or unorganised ferment, as distinguished from living ferments (bacteria, &c.), known as ptyalin. This enzyme enjoys the property of converting the carbo-

hydrates (with the exception of fruit-sugar, which is readily soluble and diffusible), such as starch, into maltose. The digestion of the walls of plants' cells, viz., cellulose, begins (in the case of ruminants) in the paunch. Its further solution, as well as that of starch, is brought about in the small intestines. The secretion from the pancreas or sweetbread has a very powerful action on starch, and converts it into one of the sugars—maltose. In the intestines maltose is converted into another form, cane-sugar into dextrose, and milk-sugar into lactic acid, before absorption takes place.

#### THE MUSCLE AND NERVE FORMERS.

We now come to the albuminoids of the food, and how they are rendered capable of absorption by the blood. The inside wall of the stomach, or of the abomasum, reed or rennet stomach in ruminants, is studded with numbers of simple glands. These glands are known as the peptic glands, and secrete a fluid called gastric juice. This secretion contains the enzyme called pepsin, and converts the albuminoids of the food into peptones, bodies similar to albuminoids, but which, unlike them, are able to pass through a membrane. This is an example of what is called osmosis, and can be easily illustrated by submerging a bladder of brine in a bucketful of fresh water; the two fluids will both continue to pass through the membrane of the bladder until the liquids are of equal density. There is a difference in the rapidity with which the two fluids pass through the bladder, which does not concern us now. The pancreatic juice, containing the enzyme trypsin, also converts albuminoids into a diffusible form.

Having briefly dealt with the carbohydrates and albuminoids of a food, we have now left the fat. This constituent is liquefied by the heat of the body, and is probably capable of absorption without change. The secretion of the liver which is poured out from the gall-bladder, and known as the bile, has a very powerful digestive action upon fat; and so also has the pancreatic juice. Gastric juice, whilst having no direct effect upon fat, dissolves the connective tissue which binds the fat vesicles together, and forms an emulsion similar to the action of the bile. The pancreatic juice carries the process a step farther, and saponifies fat, i.e., spits it up into fatty acids and glycerine. Of much interest is the method of absorption into the blood of the dissolved constituents of the food. This takes place in nearly all parts of the alimentary canal, but chiefly in the small intestines, by the medium of what are called villi. Each villus is a minute tongue-shaped structure projecting inwards from the internal lining membrane of the intestines. Without going too minutely into details it may be said that the dissolved products of digestion filter through the delicate covering of cells which envelop the villus, and thus find their way into the blood, which of course is the medium for conveying material through the whole system, and from which the living cells abstract whatever material is required for constructive purposes.

## PREPARATION OF WOOL: FROM THE PADDOCK TO THE SALE-ROOMS.

By THOMAS A. TABART.

(A Paper read before the Clarence Board of Agriculture.)

(Continued.)

PICKING up fleeces for handling upon the sorting-table: this operation requires great care and dexterity, so that fleeces taken from the floor should not have the wool unduly disturbed, so that it can be effectively spread over the sorting-table. Some lads become most expert, to the great assistance of the woolclasser, who is saved considerable loss of time from the able manner in which a fleece is thrown and spread at the same time over the table. The careful picker-up avoids mixing any droppings with the wool: and if any happen to be upon the floor they should be at once removed to prevent contact with the sheep being shorn, so that the wool may not suffer from discolouration of the fleece.

### THE WOOL TABLE.

The construction of this is most important. It is necessary to have the aperture between the laths on the table made sufficiently wide to permit locks and dirty pieces to pass through.

The table should always be kept clean whilst skirting and rolling of fleeces are being handled and prepared for the wool-bins.

The sorting-table, with the classer, is the crucial test of competency of this most necessary shed-hand, and it depends upon his proficiency whether a scientific, as well as a practical, display of a wool clip is made in the sale-room or otherwise.

The classer of wool must in these days use his best endeavours to enable the broker to scientifically display an owner's clip of wool, and should be extremely well versed in all conditions pertaining to wool. He requires decision in discriminating and determining the wool-bin into which the fleece he is manipulating should be placed at a glance, after the test of the soundness of the staple. Eye and touch must work in concert to cause a claim to be a proficient expert.

A classer of wool must graduate and learn his duties from practical experience. It is knowledge that cannot be acquired by rule of thumb, as the variations of woolclassing are of so complex and diversified a nature that in dealing with each individual wool clip a classer has to apply his own initiative into his work. Some owners require their clips to be thoroughly classed in all its phases; as an instance:—Hoggets, ewes, and wethers, 1st and 2nd combing; ewes and wethers, combing 1st and 2nd, combing general flock; discoloured fleeces; tender fleeces; **separate**. Skirting, necks, pieces, bellies, 1st and 2nd. Stained pieces, britch, and pizzle, locks, 1st and 2nd.

A classer must keep separated the different classes of wool, and wool the produce of distinct breeds of sheep. Such separation is remunerative to the owner, and stimulates competition upon fair and sound lines. A classer must roll all fleeces, carefully refraining to tie with string of any description. No dead wool, or any description of wool, should be rolled in a fleece, which must be perfect in itself. In small clips the classer would need only to skirt lightly, taking off locks and stained pieces. In writing thus, I only mean by small clips, having to class only a few bales. The owner would be guided by circumstances, but if the wool in small lots is super-quality it would be worth skirting deeply, so as to make it sought after by a fine clothing manufacturer; and such a clip would be useless unless so treated for such a buyer's purpose. This condition would not apply to a common mixed character of wool. A classer should be emphatic upon cautioning a grower not to mix his wool in bales, even if different lots are separated in the bale. The real value of the wool would not be reached. The competition under these circumstances would undoubtedly be restricted to local manufacturers or to repackers. The classer is responsible if any daggs or dirt are overlooked and observable upon a fleece; if so, he is blamable for the omission in failing to carry out his duty in a thorough manner. It is the classer's duty to direct the pressers as to the class of wool to be baled up, and to see that no pieces of twine or foreign substance are adhering to the wool going into the press, as it would greatly depreciate the value of the clip and his own work.

The above remarks unmistakably show what an important position a classer of wool occupies. His duties are onerous, and the most responsible in and around the shearing-shed. It is only the scientifically-classed wool that catches the eye and attracts a buyer to make favourable notes to guide him in the sale-room, and induces him to give attention to any special clip. This enables the buyer to operate with the confidence that should be in evidence at the annual wool sales within the State.

#### THE WOOL PRESS.

The starting-point is the weighing of wool from the bins. This is a very important procedure, as no bale containing merino wool should exceed 300 lb., and for cross-bred 250 lb. This suggestion should be strictly attended to, as it is a very great inducement to buyers to sample the wool in the bales before then, and also facilitates their examination.

The over-tightly pressed bale is on many occasions neglected by the buyer because of the difficulty he experiences in trying to remove sufficient wool to satisfy his inspection, and in consequence it does not reach an owner's value.

#### THE PACKS.

Great care should be exercised, and the most careful owner will have them singed inside, and thus make them perfectly smooth. Each pack should be looked over and turned inside out; then well shaken, so as to remove any remnants of jute, fringed ends, twine, or foreign matter

that are adhering to the bale and likely to become disconnected therefrom and attach themselves to the fleeces. The packs should be of good quality.

After leaving the press the bales should be labelled in a clear, legible, and bold stencil on the top and on one of the opening sides, so as to assist the broker in stacking, and that the particulars of bales should be easily available for the brokers and buyers in their examinations.

### THE SEWING OF BALES.

The growers would save expense to themselves by adopting the system now in vogue of sewing bales with coloured twine, and greatly lessen the risk of cut ends of twine getting mixed with the wool. Coloured twine is particularly recommended, as it is so easy of detection.

It might be inferred that these precautions are only judicious and remunerative if carried out by the owners of large flocks of sheep; but I hold that if an owner considers it profitable and worth while to shear his sheep, then I unhesitatingly say it will only be profitable if he exercises care in the manner in which he delivers his wool to the sale-room. But if an owner elects to treat his wool clip as wool has in many instances been dealt with in the past, and as I have seen "star lots" submitted under the auctioneer's hammer, he can only condemn his want of knowledge and common sense, and continue to lose money from his own carelessness, or at least his indifference.

I have noticed a very excellent precaution that is recommended should be taken at shearing time so as to bring the attention of those in and around shearing-sheds and sale-rooms to certain important conditions, viz., hanging a printed card in the shed:—

#### *" For Shearing-shed.*

1. All straw, &c., should, before shearing commences, be carefully removed from the shearing-shed.
2. Turn out each bag before packing the wool, and see that it is clean and free from bits of hemp.
3. Loose bits of twine, bagging, or straw should be carefully kept apart from the wool.

#### *" Recommendation for Sale-room.*

1. All bales must be opened at the seams only by cutting the twine.
2. Any frayed edges or loose pieces of string should be removed carefully, and at once, by men whose special care it is to watch the wool when on show.
3. Warehouse "pullings" should be carefully looked over before being restored to the bales."

These conditions I consider most essential, and would greatly relieve the responsibility resting upon the sheepowners and woolbroker if carried out.

In concluding my remarks, I desire to draw the attention of pastoralists of the State to the fact that in supplying the world's markets with their wool that there is only one Tasmania to produce wool such as this State grows. With this fact in view they should exert themselves and use their best endeavours to submit the raw article to the buyers in the most presentable manner and condition that local circumstances, such as season and weather, will permit it possible to attain.

The reason for my desiring to emphasise the above is evidenced by the splendid structures that have been erected to accommodate our wool clips; and I have no hesitation in saying that with the complete contrivances kept in stock for moving wool in bales from rail to wool stores, the expedition in handling and elevating bales by mechanical appliances provided to lift and move bales into the show-rooms, reflect the greatest credit upon the energy of our established wool firms, both north and south of the State, in catering for the wool producer.

The storing-place for wool is strained to its utmost limit during the wool sale season, and as the wool has to be displayed to the best advantage of the seller and for the convenience and inspection of the buyer, every detail in this respect has been anticipated, studied, and adapted.

The gentlemen who have attended our annual wool sales for many years past appreciate the facilities afforded them in their periodical visits for the purpose of securing Tasmanian wool, which, in my opinion, should rightly be secured in Tasmania.

The encouraging facilities offered are so apparent to buyers that their numbers and nationality are causing their ranks to be yearly increasing, and new faces are to be seen, all in the interest of the producer, who is greatly benefited by the additional competition.

Therefore it is the wool show-room that therein producers should vie with each other in friendly competition by submitting their wool clips.

It is in the wool show-room that well-sorted and well-classed wool will receive the attention, admiration, and keen competition from buyers who aim to purchase for foreign manufacturers.

It is in the wool show-room wherein the broker strives to exhibit producers clips to the best advantage.

It is in the wool show-room that the arduous and anxious work of the broker is manifest by the arrangement of his selling catalogue with his valuations.

It is in the wool show-room that gives indication that the commodious buildings are erected, and conveniences are arranged, for the reception and accommodation of one of our State's most valuable productions.

## SOME POINTS WORTH THE ATTENTION OF TASMANIAN FARMERS.

### THE SOIL AND ITS LIME.

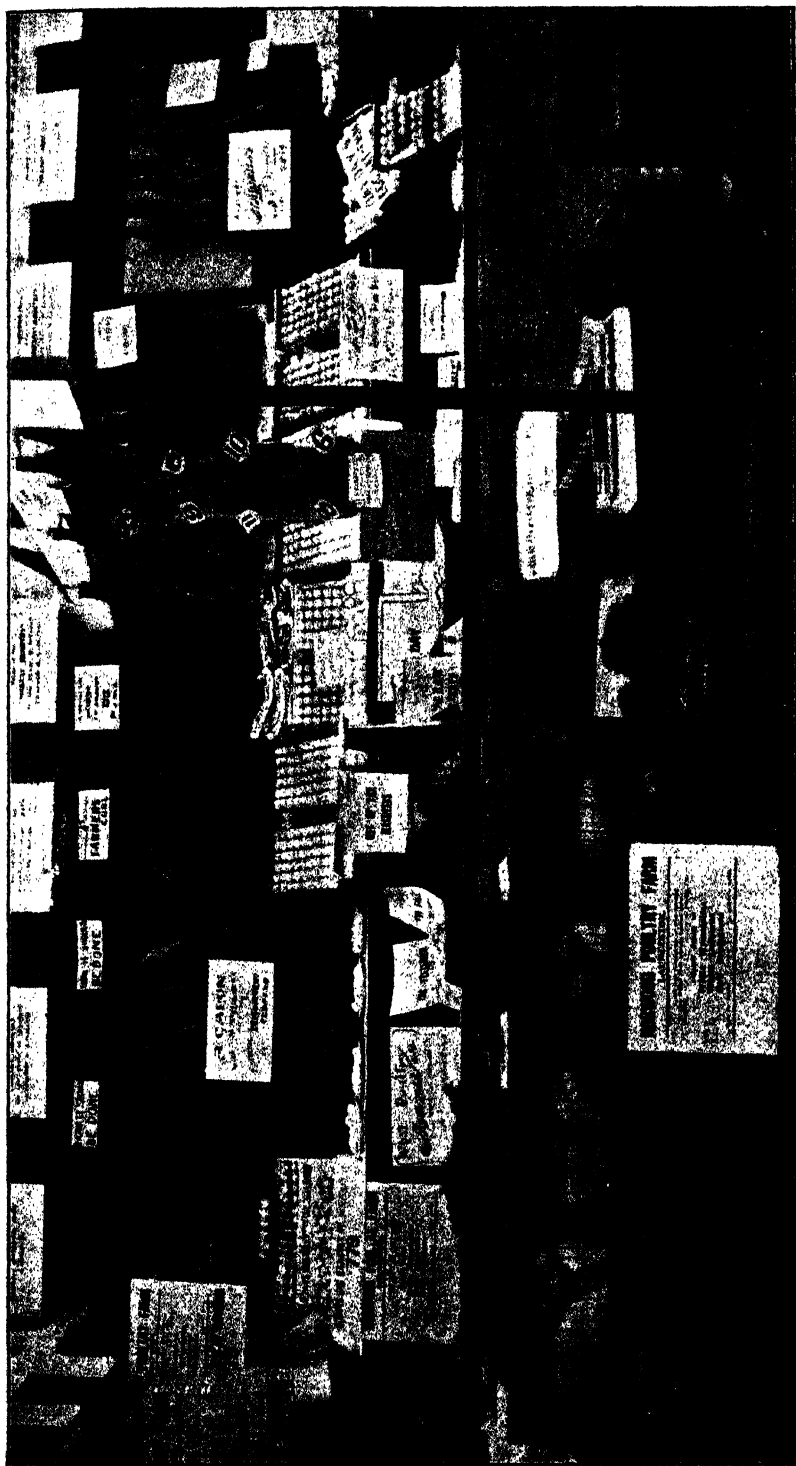
By H. J. COLBOURN, Agricultural Chemist.

(Continued.)

#### LIME-BURNING.

PURE limestone is composed of oxide of calcium  $\text{CaO}$  (lime) and carbon dioxide  $\text{CO}_2$ . Theoretically 100 lb. of limestone yield 56 lb. of lime and 44 lb. of carbon dioxide. When limestone is heated to a temperature of  $1300^\circ \text{F}$ . the carbon dioxide gas is driven off, leaving the caustic lime behind in the solid form, which quickly crumbles to powder in contact with water; this process, which is called slaking, being accompanied by the evolution of great heat. Quick or caustic lime requires about one-third of its weight of water to complete the slaking, and as this adds to the weight of carriage of the material it is the usual practice for the agriculturist to slake his own lime, which is done as follows:—The freshly-burnt lime is put into small heaps upon the ground where it is intended to be spread about afterwards; or else it is put into one large heap, conveniently situate for application when the process of slaking has been completed. In both cases it should be covered with a layer of soil to prevent access to it of atmospheric carbon dioxide, which would revert it to its original carbonate of lime condition. This reversion, it is true, takes place very quickly in the ground after the lime is buried, but other useful effects follow from the reaction taking place there, which would not be the case if it occurred above ground. The completion of the slaking in the heaps is ascertained by forcing a stick into them, when, if no resistance occur, the lime is ready to spread about. This atmospheric slaking is preferable to applying water to the quicklime, as it is difficult to judge the exact amount of water required; and if any excess of the latter is applied the result is a sticky mass, which cannot be satisfactorily dealt with afterwards. It is not often that a farmer undertakes to burn his own lime, but if limestone deposits are easily accessible and fuel abundant the process of lime-burning is not very difficult or costly.

The following description, from "Eckel's Limestones," of the primitive kilns still used by some American farmers may be of interest in this connection. These kilns are rudely constructed of stone, and are located on the side of a hill, so that the top is easily accessible for charging the kiln with stone and the bottom for supplying fuel and drawing out the lime. In charging, the largest pieces of limestone are first selected and formed into a rough dome-like arch with large open joints springing from the bottom of the kiln to a height of 5 or 6 feet. Above this arch the kiln is filled from the top with fragments of limestone, the larger



*A portion of the Agricultural and Stock Department's Exhibit at the Southern Agricultural Society's Show, Hobart, 1911.*



pieces being used in the lower layers; these being topped off with fragments of smaller size. A wood fire is then started under the dome, the heat being raised gradually to the required degree in order to prevent the sudden expansion, and consequent rupture, of the stones forming the dome. Should this happen, a downfall of the entire overlying mass would take place, putting out the fire and causing the total loss of the contents of the kiln. After a bright heat is once reached throughout the mass of stone, it is maintained for three or four days to the end of the burning. This is indicated by a large shrinkage in volume of the contents of the kiln, the choking-up of the spaces between the fragments, and the ease with which an iron rod can be forced down from the top. The fire is then allowed to die out, and the lime is gradually removed from the bottom. This process of burning is simple and cheap, the only expense being for blasting the stone and preparing the fuel.

Whether lime should be applied in the burnt or in the carbonate form must be determined by the circumstances of the case. If in the latter form, as stated in my last article, the limestone must be very finely ground to be of much use. In soils where clay strongly predominates, or where there is a stiff clay subsoil, freshly-slaked lime will be the better application, because of its coagulatory action upon clay, which it, on this account, renders freer for the passage of rain-water, and more easy to work. In this connection, so far as the subsoil is concerned, a portion of freshly-slaked lime at once dissolves in the soil-water and passes down to the subsoil, upon which it acts. Carbonate of lime needs the presence of a fairly strong solution of carbonic acid to go into solution, and when it reaches the clay in this condition, fails to act upon it in the same manner as burnt lime.

Mechanically-powdered limestone will act favourably upon clay, and render it more permeable to water and the roots of plants; but this consideration can only affect clay at the surface, the subsoil clay being only affected as aforesaid by lime in solution. Light friable soils, and such as are poor in organic matter, derive more benefit from powdered carbonate of lime, which may also be usefully applied to surface clay when the latter contains plenty of organic matter.

One very important effect of the application of lime to land is the prevention of denudation or surface-washing, which is especially liable to take place upon steep slopes, but which liming greatly mitigates. The following observations from the pen of Professor Wiley, the eminent American agricultural chemist, convey useful information upon this point. He remarks: "The observing agriculturist will have noticed that even in a hilly country a soil *in situ* underlain by limestone is less likely to be cut up by gullies than a soil similarly situated and deficient in carbonate of lime. The reason of this is plain. In a soil deficient in lime the clays, when once brought into suspension by moving water, assume a semicollloid state, and remain indefinitely in suspension. Clays, on the other hand, which are heavily impregnated with lime salts, are in a flocculated state, and the larger aggregates thus produced settle

quickly. The result of this is that a soil is less easily moved by water, and a field thus treated less exposed to washing by heavy rain. The change in the physical condition of the soil which is produced by the lime is also another important factor worthy of consideration. A stiff clay soil is almost impervious to the penetration of surface water, and thus the amount which is carried off is raised to a maximum. A well-limed soil, on the contrary, in which the particles are perfectly flocculated, is much more pervious, and the amount of water which will be retained and delivered gradually to vegetable growth is much greater. Thus the beneficial effects of lime are manifested in both ways—in the better retention of the flocculated clays, and in increasing the capacity of the soil for holding a given amount of water in its interstitial spaces.” The increased permeability of a clay soil for the passage of rain-water, as a consequence of the application of lime, has an important bearing upon soils of this kind, where a scanty rainfall prevails, one feature in the treatment of which is to endeavour to facilitate the passage into the underlying soil of all the rain which falls upon the surface, thus storing it up for future use rather than allowing it to run off the surface; in which case much soil is certain to be removed, as well as valuable plant food. The following summary of the effects of lime upon soils is from Mr. Connell’s “Agricultural Note-book”:—

1. Lime unites with felspar or clay, setting free potash or other alkalies.
2. It acts on vegetable matter, setting free ammonia, water, nitric acid, and carbon dioxide (which it unites with), thus destroying excess of humus.
3. It neutralises organic acids, thus “sweetening” the soil.
4. It takes up nitric acid, as formed by the nitrifying bacterium.
5. It is a plant food in itself.
6. It aids in the formation of zeolites (secondary silicates).
7. It opens up clay soil from the flocculating action which it has upon the molecules of that substance.
8. It renders harmless injurious salts of iron or copper.

Soils which contain more than 4 per cent. of lime (carbonate) should not have any applied to them, as a rule. Loamy and clay soils well supplied with lime contain from 1 to 3 per cent. of calcium carbonate, and defective soils less than 1 per cent.

## FORESTRY AT CRESWICK, VICTORIA.

By COL. W. V. LEGGE.

(Continued from page 502.)

### THE STATE FOREST.

**A**FTER passing the upper end of the nursery one arrives at the margin of the artificial Pine forests, the road to it leading up the valley mentioned above. On entering the timber one is immediately struck with the value of an artificial forest, and its superiority to the natural one, where trees of all sizes and at all intervals are struggling for mastery. In the former not a foot of ground is wasted; and as we stood surrounded by groves of lofty and vigorous Conifers of 16 to 18 years of age, each one supplying as good timber as its neighbour, at 8 feet from it, the scene was most impressive.

A proportionate smallness of girth to height was noticeable in both the Corsican and Monterey Pine woods, both species having attained great height as compared with their age.

In the foreground of the Pine forests, which we were to enter presently, was a small grove of handsome British Oaks (*Q. pedunculata*), which at once attracted notice by their height and clean boles. They are 15 to 17 years old, and average about 35 feet in height, with a trunk diameter of 9 to 12 inches. Should this grove be thinned so soon as they are fit to cut profitably, the residue, as forest trees growing at 16 feet intervals, should yield, perhaps, in the present generation a handsome return. In view of the success at Creswick of this valuable British timber large areas will doubtless be planted in the near future in districts with suitable rainfall and soil. In the present instance the wants of the Oak have been attended to in a choice of good soil for their location, and hence the success evidenced in the forward state of this grove.

Contiguous to the Oaks is the neat little cottage of one of the foresters (Fig. 1 in May article), reminding one of the snug homes of these officials in the Saxony and Bavarian Pine forests. Surrounded by a neat picket fence clothed with creepers and climbing roses, and enclosing a neat garden and flower-beds, it makes an ideal forest home. My recollections of the pleasant little visit we paid to the genial young hostess, and the delightful cool of the cottage (with a shade temperature of 90 degrees Fah. outside in the forest) will not easily be effaced; the more so as the cooling refreshment hospitably offered us materially fortified us for the continuance of our tour of inspection.

On our quitting the welcome shelter of the cottage, before entering the pine woods my guide took me to a small clearing contiguous to them, which was paced by me for my satisfaction, and measured 35 yards by 28 yards. This little patch was dotted throughout with vigorous young Monterey plants, showing remarkable vigour, and reminding me considerably of self-sown "Cluster Pines" (*P. pinaster*), in their lengthy

tops. On my asking for an explanation, Mr. Johnston informed me that they were the result of a fire which he had run over the ground after cutting down the trees for fruit cases. These youngsters were two years old, and some of them nearly 3 feet high. The parent trees were 17 years old, and had brought in a return which figured out at £100 an acre. No more convincing proof of the great commercial value of this Pine would have been afforded than the sight of this seedling growth; for, added to the handsome return it is capable of rendering as a quite young tree, it speedily reproduces itself by the simple process of "burning off." The conclusion arrived at in my mind was that the sight of these remarkable young "Monterey" repaid me well for my visit, even if I had seen nothing else; and this was confirmed by the further evidence awaiting me directly afterwards.

Passing from this clearing we entered the portion of the reserve devoted to the culture of the Corsican Pines (*P. laricio*) and its varieties. This timber showed splendid growth, being clean in the bole, with insignificant branches up to a great height from the ground. In height, too, these "Corsicans" and their relatives were very uniform. The Asia Minor variety (*P. pallasiana*), from the Sicilian Taurus and other mountains in that region, is a favourite at Creswick, having, in addition to a clean bole, a longer space between the whorls of branches, and a consequent less development of knots. In any scheme of afforestation with conifers in Tasmania we should give attention to these two Pines, though it is problematical if either would show the same rate of growth as at Creswick, where the warm spring following on either a wet winter or heavy snow-thaw induces active growth. It is noteworthy that Veitch described this eastern form of Corsican pine as having "stout branches as springing from near the ground, which frequently spread out so as to impart to the tree a broad pyramidal habit." This, perhaps, is shown in detached individuals standing on the open mountain side, and is analogous to the branched form of the Oyster Bay Cypress Pine growing in the open, and which differs remarkably from the more quickly-growing pole-like example of the Pine thickets. As to the Taurus Pine in question, climatic conditions and close planting have much altered its habit in Australia, and produced a better tree for timber.

A second variety of *P. laricio* was pointed out to me growing in rows devoted to itself, and was, as I understood, styled by Mr. Johnston *P. laricio horizontalis*, with timber equal to the other varieties in quality. It was not clear what Pine this title refers to; possibly it may be the western form from the Pyrenees and Spanish Mountains, *P. laricio monspeliensis* (Beissner). In any case it was reported as being an excellent timber.

Leaving this fine block of timber the Superintendent took me to the opposite side of the valley, passing on the way a small forest of Monterey Pine, which had been thinned for fruit-cases to 16 feet intervals, their lofty boles (seen then more plainly) showing all the appearance of a valuable return in the not distant future. Ascending the hill, after leav-

ing the "thinned" plantation, we came to a considerable area which had been totally cleared of "Montereys" three years ago, and had been subsequently burnt out by Mr. Johnston and his students. It was a veritable scrub of young Pines, showing astonishing growth. In some places we had to push our way through densely-branched trees of nearly 10 feet high (three years' growth), standing in a wilderness of (*Poa*) tussock grass. The work of thinning this vigorous young colony was in prospect for the coming winter, and a very responsible task it has no doubt proved.

The dominant thought in my mind was the bright outlook in growing this tree, either for timber or shelter, more particularly in connection with the agricultural and fruit industries. Its normally rapid growth and great powers of reproduction on the same ground by the aid of fire, testify to the second generation coming to maturity and to a paying stage even more quickly than the parent trees. No Pine, therefore, that we can grow in Australia is destined to become such a valuable commercial product for the pastoralist and farmer if planted on the spare lands of our holdings.

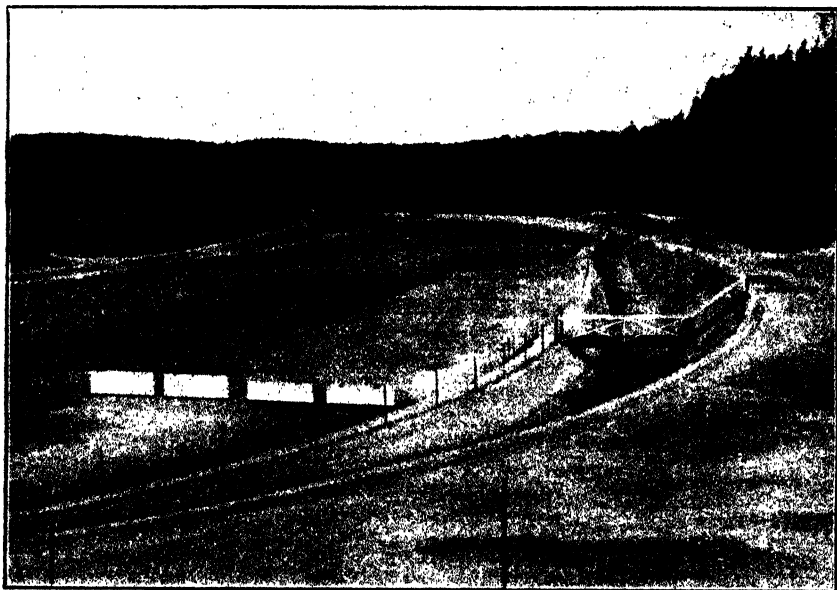
If reference be made to the illustration in my former article, the timber obtained from the trees just referred to, and which are shown in the illustration on page 501 in the present paper, is depicted on its way to the mills for fruit-cases. The latter photograph gives an admirable idea of the density of the artificial Pine woods from which this useful timber is obtained.

Near-by this tract of self-sown Pines we cross several of the 1 and 2-chain inner fire-breaks, which traverse the wood and connect with the wide 3-chained "break" surrounding the reserve and dividing it from the adjacent country. This important feature in the upkeep and safety of artificial forests is paid especial attention to at the Victorian "schools." The method of controlling the fire necessary to the clearing out of the breaks is very simple. A margin of three furrows is ploughed on each side of the break, leaving the belt of vegetation in the centre, which can then be burnt out safely. All burning is done at night after the summer passes, and the work is carried out by the students, under the supervision of the foresters and Mr. Johnstone.

Another Californian Pine (named after its discoverer, the hardworking Irish botanist, Dr. Thomas Coulter) is doing well at Creswick. Specimens of *P. coulteri* noticed were in some instances 30 feet high, and only 12 years old. The timber of this Pine is apparently not much thought of in America, perhaps because of unfavourable comparison with other noted species of commercial value. However, it appears to have been tested at the "school" in Victoria, and Mr. Johnstone is of opinion that it will be a profitable example of exotic timber in the Victorian reserves. This remarkable Pine is chiefly known in Great Britain and Australia as producing on its stout branches large tuft-like foliage of rigid ternate leaves, as well as immense cones weighing up to 7 lbs. Specimens which the writer has seen from the fine tree growing in the

ground of the Richmond Hill College weighed fully 6 lb. The cones of the well-known Australian *Araucaria* (*A. Bidwilli*, of Queensland), called there "Bunya Bunya," are the only ones in existence which are similarly massive and cylindrical, and which is larger even than that of Coulter's Pine.

*Pinus muricata* (Prickly-coned Pine), a California coastal tree clothing the sand dunes and similar sea-shore wastes, is doing well at Creswick, but is inclined there, as elsewhere, to develop an uneven growth in the plantation. This Pine is a new venture in Tasmania as a shelter tree, the writer having procured a quantity of seed in 1908 from the late Chief Forester, Mr. H. J. Matthews. It has a bushy habit in youth, and should make a good breakwind. It has obtained good dimensions



*Forming New Forest Nursery, Creswick, surrounded with *Pinus radiata* and *Pinus laricio*, from 6 to 12 years old, 700 acres. North Side showing Pine Cut for Frost Cases for the London Market.*

in Victoria, and promises well as a "nursery plant" at Cullenswood, where also a small plantation has been recently put out. Mr. John Taylor has it growing well, too, at "Winton"; and in the sandy soil so much in evidence in the Macquarie valley, it should flourish and give us speedy testimony of its aspect and dimensions. As regards the timber of this Pine, it has proved in its native habitat to be variable, according to climate; as is the case also with the Monterey Pine, as demonstrated by its better quality in Australia than in the Province of Monterey. The Prickly-coned Pine is found to produce workable timber in the district of Mendocino, on the Californian coast, considerably north of San Francisco, and which area appears to be its northernmost limit.

In the far south, extending into lower California, as it does, the wood is of use only for burning. It is probable, therefore, that the Tasmanian-grown timber may be found to equal that produced in California under the cool climate of Mendocino. As a shelter tree its use is shown by the attractive photo. at page 50 of the late Mr. H. J. Matthews' excellent work, "Tree-planting in New Zealand."

Following on the Pines it will be of interest to allude to the beautiful and highly-useful Conifers, Spruces, and Firs. These have been planted as specimens, and are represented in the arboreta, but nothing has so far been done in laying-out plantations of them. At the inception of a forest reserve the Pines (*Pinus*), in their more speedy growth and quicker development of bole, lend themselves to speedier commercial returns than the branched and spire-shaped trees of the genera *Picea* and *Abies*. These ornamental Conifers do not, in short, form a timber tree as quickly as a Pine, except it be the closely-allied Douglas Fir, or "Oregon Pine" of commerce, which, when it finds a situation to suit its habits, grows very quickly into a useful tree. In regard, however, to the tree-culture at Creswick, in all probability when the scope of operations is more extended, both Spruces and Fir plantations may be laid out; but not to any extent, as the climate is not wet enough for either of these genera, some species of which also flourish in damp soils. Hence we find them adorning the mountain sides of the great ranges in the Western States, Oregon, British Columbia, the wet hill districts of the U.S.A., the moister parts of Europe and mountains subject to heavy snow falls; as also similar topographical areas in Western Asia, Southern Siberia, the Himalayas, and portions of China and Japan.

Notwithstanding its liking for a moist climate we find a useful tree, closely allied to the Spruces and Firs, viz., the "Oregon Pine" of commerce (botanically known as the Douglas Fir), doing well at Creswick. We visited a block of these in a hollow where other Conifers growing on its sides were drawing the Douglas Fir up in stature. Mr. Johnstone is desirous of seeing this fine timber Conifer a success at Creswick, with a view to its introduction to the moister parts of the State. In Gippsland, for example, it should do well. In Tasmania it appears from my personal experience, to be slow growing. In the grasshopper year (1897) a fine example in the Cullenswood grounds was attacked, in common with every Spruce growing there, and completely wiped out. It evidently likes a well-drained site; as on St. Marys, for instance, an example planted in a sidewalk grew in its early years more quickly than others in the flat streets, and after the edge of the bank had been cut away for a table-drain, injuring its roots much on one side, it commenced to shoot up, and left its comrades far behind.

It is regrettable that the European Larch has not been found to do well at Creswick, the climate not being, perhaps, wet enough; but the real difficulty will be found in the heat of the Victorian summer in that part and the hot winds. It should flourish on the hillsides and in the valleys of Gippsland if poor soil with an absence of clayey bottom can

be found for it in areas that are not naturally timbered. The drawback to Larch foresting will be inaccessibility in marketing its timber. This will be especially the case in Tasmania, where many hundreds of acres of ideal Larch-country exist from the west of the Derwent to the eastern slopes of the Frenchman Range. There, on the open steep hillsides, the very ditto of the Ceylonese and Travancore patnas, and with a rainfall of much over 50 inches, the ground is ready to put the plants in. In Wales the Larch is fit for telegraph-poles in 15 years; and it is likewise used for railway-sleepers in the Principality. In New Zealand 17-year-old trees have cut two straining-posts and four ordinary fencing-posts, which is more than any soft wood tree will furnish in this country, the Monterey Pine excepted.

Other useful Conifers are grown for timber at Creswick, among the number *P. canariensis*, which does well. At this stage of my article, however, any further particularising of species is precluded, and a word, therefore, on this latter species must terminate my notice of the Creswick venture. The warm summers of Victoria are evidently the chief factors in the success of the Canary Island Pine on the Ballarat plateau, and to the absence of spring frosts its healthy condition at that elevation must alone be due. It will not thrive in the colder parts of Tasmania, its growth being very slow in the uplands away from the sea air and under the ban of the spring frost, so ruinous to all young foliage of tender character. Hence the progress of the small clump recently put in at the Brookdale Sanatorium, near Campbell Town; and in a warm red soil should be watched with interest as a test for this handsome Pine in a colder climate.

In contributing this notice of the Creswick School of Forestry and its plantations, the object has not been so much to give a descriptive account of the excellent work done there as a beginning to the wide scheme of afforestation which the Department has in view, as to endeavour to show the thorough necessity of something being done in this State to fall into line as regards forestry with our neighbours on the mainland. To state the case shortly and without prejudice, we in Tasmania are almost the only up-to-date community which has done next to nothing for the conservation of its magnificent forests; neither do we control properly the operations of lumbering by the timber companies who lease large blocks of our unalienated land with remunerative results to themselves, at the same time that they inflict, by indiscriminate felling, a long-standing injury on the forest-growth in them. It no doubt takes long to induce a young community to begin the enacting of forestry laws, for to do so requires an unselfish policy and a statesmanlike and we might say benevolent—view of the future, for we have to legislate for posterity. Nevertheless, we have only to look abroad to see all countries in Europe, America, and Asia (including Japan, which has the largest nursery in the world) occupied with this work.

The writer earnestly hopes that, from what he has written, some readers of the "Gazette" will learn to appreciate the value of forestry.



It may be of interest to glance, in conclusion, at the work done by the Victorian Department of Forests in regard simply to the details which stand out prominently in the annual report for 1910. The Department is, as yet, young; the present "Forest Act" having been passed so recently as 1907. It is, therefore, for its age, doing great work and rendering yeoman service to the State. Its operations last year extended to 22 different reserves, State forests, and plantations. In the north-west Mallee districts endeavours were made to enclose land to the extent of 12,000 acres for afforestation with hardwoods; and during the present year two northern nurseries are being established in the Goulburn Valley and Gunbower districts. The expenditure side of the accounts last year shows an item of £17,883 for the improvements to State forests and the formation, extension, and maintenance of State plantations. On the receipt side, as showing the success attending the administration, the two principal items in the receipts out of a total of £41,929 are—(1) rents for grazing and sawmill sites, £10,000, the grazing areas alone bringing in £9534; (2) royalties for sawmill, hewn, mining, and fencing timber (as also firewood and wattle bark), £31,495. The most striking item in the latter is firewood and charcoal, £9836.

The above figures show what could be done in making an income in this State were a "Forest Act" existent and in working order; an income, in fact, which would suffice for the establishment of a State nursery and plantations on a proportionate scale to those in Victoria. Without funds the appointment of foresters (who do the bulk of the work in the other States) is impossible; and in the absence of these officials there can be no control over the system of lumbering now existing in forests containing our very valuable Conifers, Huon Pine, King William, and Celery-top, as also our invaluable Blackwood, all of which are fast being cut out by organisations from the mainland. A glaring case of this is the great amount of Blackwood and Celery-top which is being annually cut and exported from the Duck River timber beds without any supervision or any care of the young trees growing in the area.

The writer's earnest hope is that the good work begun by the Director, and his ardent desire to see the inception of a "Forest Act" in Tasmania in the near future, may bear fruit.

## BUILDING UP THE DAIRY HERD.

By A. CONLON, Government Dairy Instructor.

HAVING given a brief account of the pure breeds of dairy cattle mostly met with in Tasmania, it will be as well to call attention to the fact that pure-bred cows are not absolutely essential to successful dairying. The value of a dairy herd is gauged by the milking qualifications of the individual cows, not by their conformation or pedigree. At the same time, conformation and pedigree must not be undervalued, as the ideal dairy cow must have both, and be a deep milker as well, for the simple reason that characteristics which are inherited are more certain to be transmitted to the progeny.

The term pedigree has of recent years acquired quite a different meaning, and is now expected to prove, not only lineage of pure blood, but must also embody descent along a line of heavy milkers, both in quantity and quality. Breeders already recognise the importance of this question, and to this may be ascribed the splendid prices realised at the recent Launceston show sale of young dairy stock.

In building up a dairy herd the selection of a sire is the first consideration. The choice of breed will depend upon the particular fancy of the dairyman, as with any of the orthodox dairy breeds success is more likely to follow on the selection of one for which he has a partiality; but environment must be studied, with a view to choosing a breed suitable to the local conditions of country and methods of farming. When a particular line of dairying is followed, such as cheese-making or milk-selling, further consideration is necessary, as it is obvious that under such circumstances quantity of milk rather than high percentages of fat will be the object in view.

Having chosen a breed—and by way of illustration we will suppose that the Ayrshire has been decided upon—the dairyman should, if not already an expert, carefully study all available literature on the subject of Ayrshires with a view of acquiring a knowledge of the principle points which go to form the ideal type of the breed. Conformity to type is of the greatest importance where pure-bred animals are concerned, and obviously so with respect to sires which are intended to be used for the purpose of grading up a herd to the type selected. Non-conformity to type suggests a want of purity in breeding, and, as a corollary, a lack of prepotency—that hereditary power of transmitting his own characteristics to his progeny which all well-bred sires should possess.

A careful study should next be made of the milking pedigree of the animal selected. Inquire closely into the performances of his dam as a deep and persistent milker; ascertain from the records both the number of gallons and the average test of the milk yielded for the season. Ayrshires will yield 800 gallons per annum under proper conditions. Follow this up by a scrutiny of what his sire's dam could do, and should there

be any difficulty in this (should no records be available) have no hesitation in passing on to the selection of another animal. The up-to-date breeder is keeping records; deal with him alone. By so doing you will be assisting the good work of preventing breeders focussing the show ring to the detriment of the milking qualifications of the animals bred.

Conformation and milking pedigree being satisfactory, the animal should now be examined with a view to gauging his excellence or otherwise in those external points not generally included under the above terms.

The eyes should be wide set, bright, and prominent. The false, or rudimentary teats should be well developed in front of the scrotum; the skin yellow, soft, and elastic, with no suspicion of harshness when handled. Finally, the animal should be constitutionally sound, especial care being taken to make certain that he is free from tuberculosis.

Having taken every possible precaution in the selection of the bull, and being quite satisfied with his purity of breed, ancestral records, conformity to type, and soundness of constitution, the dairyman will watch with anxiety the gradual development of the animal's female progeny until they mature and join the herd as milkers, as it is unfortunately only too true that this is the period at which he will be able for the first time to gauge the true value of the animal selected. Notwithstanding that every precaution may be taken, the final result is always something of a lottery, but the winning chances are greatly enhanced in the case of a pure-bred bull owing to his greater prepotency; that qualification which he has inherited through a long line of ancestry.

From what has been stated it is obvious that the age of the bull should be closely considered before finally deciding to purchase. Many dairymen deprecate the use of aged bulls, but many of the best of every breed have lived in full vigour until 10 or 12 years old. In purchasing an animal five years old or over the dairyman has the advantage of being able to view the bull's female progeny, and enquire into their milking qualifications; whereas in the case of a young animal being purchased his true value will only be known when his progeny mature, but should he prove to be a successful sire it is satisfactory to know that with due precautions used the owner can reckon on a good few years' service, and with the full knowledge that the longer he is kept the better it will be for the herd.

It will be readily understood, from what has been said with respect to the prepotency of pure-bred animals, that with such a sire and cross-bred cows of good milking qualifications, it should be possible to attain the result looked for more quickly even than if the females were themselves pure bred, as under those circumstances there might be a strong prepotency in the females, which might act in the opposite direction to that desired. The absence of such characteristics in the females of cross-bred origin must add to the certainty of the desirable traits of the sire and his ancestry being reproduced in the progeny.

## GARDEN NOTES FOR DECEMBER.

By J. OSBORNE, JUN., Horticultural Instructor.

### FLOWER GARDEN.

**D**URING the first week of the month all belated annuals should be planted. The early-sown seed in many cases failed to germinate, entailing a second sowing, and much loss of time. The display of colour in the garden will be somewhat later in consequence.

It may be necessary to dig afresh some of the beds prepared for November planting; and it would be of the greatest assistance to the young plants to do so, as nothing is more hurtful to these young plants than the planting in a soil that has become settled down before the annuals are put in.

It has been shown that most of the plants make their growth, and flower and pass away, in the course of from four to seven months, and, as a consequence, have to hustle somewhat in that period if they are to make a success of their existence.

When planted in hot, sunny weather a little shade must be given to the plants till they have become established. Water freely, using a watering-can with fairly fine rose.

Beds that were planted in November should be kept well hoed, and growing plants cared for and tied in where necessary. Sweet peas should be specially cared for where they are flowering freely; keep the plants from seeding or their flowering season will soon be past.

The few remaining gladioli should now be planted, late dahlias also, the beds being made good with well-decayed manure.

Keep the hoe going as often as possible. Where asters are growing strongly the beds may be top-dressed with well-decayed stable manure, putting it on to a depth of some 3 inches.

Pelargoniums for bedding may still be planted: salvias also. Choose the warmest and driest position for them.

Chrysanthemums should be stopped and thinned during the early days of the month. The bed may be top-dressed also. Apply water freely.

Early bulbs should be lifted and stored, with sand or fine earth thrown in among them to prevent shrivelling. Keep them away from rats and mice.

All herbaceous plants should be cared for just now, as they should be in their glory. Water freely during dry weather and top-dress liberally.

A good sowing of sweet peas for March flowering may be put in. Prepare the soil thoroughly and water freely after sowing. The seed will be no worse for soaking 24 hours previous to sowing.

Edging plants—lobelia, violets, &c.—should provide plenty of cuttings and roots. The cuttings, put into some light, sandy soil and kept half-shaded, will provide borders full of flowers right into the winter.

Carnations may be planted still. Tie in all spreading branches of tree carnations and put in a few cuttings of the most forward, using a light, sandy compost.

During the month many of the tea roses may be well pruned back, ensuring a lot of good flowers in February and March. In any case remove all old flowers, and water freely in dry weather.

Climbing roses should be pruned in and be liberally watered, top-dressing the beds with good short manure. This will ensure a good blooming season next year.

Where oidium is present, dress with flowers of sulphur: put it on in the evening or early morning.

After the second week prepare to sow such biennials as campanula, dianthus (Indian Pink, Sweet William), pansy, antirrhinum, aquilegia (Columbine), larkspurs, wallflower, Brompton, and East Lothian stock, Margaret carnation, and any other of this class that may be desirable. Use a light, friable compost, and do not sow too thickly. Place the boxes or pans in a shaded position till the plants are well established.

Sow mignonette on a piece of good soil for late flowering. Do not cover too deeply, and water liberally with a fine-rose watering pot.

Keep all the beds free from weeds, and after watering allow the surface to become dry in order to loosen with the hoe.

Look out for aphids and other insects. Make use of the "Phenyle" mixture, 1 in 60.

#### KITCHEN GARDEN.

Main crops should be well forward, and will require attention in the way of hoeing and watering.

Late potatoes should be well above ground, and should receive a good hoeing.

French beans and broad Windsors, for use in the autumn, may be sown. Have the beds well prepared, and dig deeply. Use well-decayed stable manure when procurable.

A final sowing of peas may be made during the first week of the month, Yorkshire Hero being used.

Prepare beds for sowing cauliflower, cabbage, lettuce for autumn use—Veitch's Autumn Giant cauliflower, Enfield Market cabbage, White Ccs lettuce.

Sow radish, turnip, spinach (also a few grains of parsley) for late autumn use.

Tomato plants should receive attention, all surplus shoots being removed, and, where possible, the leading shoots tied up. This will hasten the ripening of the fruit.

Plant a few cauliflowers and cabbages; a little lot of lettuce also. These should be puddled before planting.

Water freely, and keep the hoe going in dry weather.

Rhubarb beds should receive liberal supplies of liquid manure, giving fresh water in the first place.

Asparagus bed should be allowed to run\* from the beginning of the month.

Kale should now be ready for use. Keep a few plants in the bleaching pits, and relieve as soon as possible after cutting for use in order to get new growth. Pay careful attention to the celery beds, giving water liberally, and hill up as the plants get along.

Strawberries will be ripening rapidly. Withhold water unless weather is very dry. Do not allow weeds to get ahead in the beds.

Raspberries and other small fruits, such as gooseberries and currants, should be ripening. They will require attention. Do not allow insects to destroy the fruit. Use the "Phenyle" spray, at a strength of 1 in 60.

Keep the hoe going at every opportunity.

#### GREENHOUSE.

Cineraria, primula, cyclamen, tuberous begonia, gloxinia, calceolaria, and streptocarpus sown in October should be in a condition to prick out and in some cases put up; use a good loamy compost for the purpose.

The plants will need a little shade for a few days, when they may be gradually inured to the full power of the sun. Apply water carefully.

Cuttings of tuberous begonia should now be potted into 3-inch pots; use a good free compost, and give shade for a few days.

Pelargoniums, as they finish flowering, should be placed in the open in order to thoroughly ripen their growth. Cyclamen that have finished flowering should be given the same treatment. Azaleas, ericas, rhododendrons that have finished flowering, should be repotted at once and allowed to remain in a half-sheltered position to thoroughly ripen their flower buds for next season's flowering.

Take care of the ferns and palms. Give water freely, and use the syringe morning and evening.

Keep a sharp look-out for insects, such as aphis, thrips, &c.

Ventilate freely, and keep the floor of the house well supplied with water.

Mr. E. S. Salmon, in his report on Economic Mycology for 1908-9 (Headley Bros., Wye), issued last June, states that wart disease or black scab of potatoes is rapidly spreading in England. It threatens to become the most serious fungus pest of the tuber. In more than one county the allotment grounds have become so badly infected with the disease that potatoes can no longer be grown in them. His argument is that such a pest should be dealt with by the Board of Agriculture much in the same vigorous way that infectious diseases of animals are; and every well-wisher of agriculture will concur with his recommendation.

## TASMANIAN FRUIT SHIPMENTS, 1911.

THE following report on the above subject by the Secretary to the Tasmanian Agent-General in England is published for the information of orchardists and others interested in the fruit industry:—

Memorandum to the Agent-General for Tasmania:

London, September 1, 1911.

Sir,—I have the honour to furnish the annual report on the shipments of Tasmanian fruit to this country for the past season.

The total quantity sent was greater this year than last, the number of cases according to the Tasmanian press being 691,516. Up to the middle of June the market was good, and prices were satisfactory; but after then to the time of the last sales there was a heavy fall in prices, which must have seriously influenced the shippers' averages.

The fruit, on the whole, was not so good as in some previous years. Large quantities were soft and lacked keeping qualities, bruising easily and turning quickly after landing. These drawbacks, however, were probably beyond the shippers' control, being due, possibly, to weather conditions whilst on the trees. Some shipments, however, were landed in a condition which pointed to faulty carriage. One consignment (the "Ascanius") had a large quantity practically unsaleable; but the owners have, I understand, met the shippers in the matter, thus preventing them from being heavy losers.

The distinctive feature of the season was the number of large shipments by special late steamers. It is possible that fewer and smaller consignments arriving in July in some years might make paying prices, but the fruit should be specially selected, of good hard varieties, and in a condition to keep for some time in a high temperature. This might be difficult, because the fruit would necessarily be picked at the end of the season when it is fully ripe, and possibly kept for a time before being placed on board ship. Such shipments should, however, be always regarded as speculations, as if (as in the case of the past season) there is a warm spring and early summer in this country and Europe, they have to be sold at a time when there are large quantities of soft fruits in the market, which appeal to people more in the hot weather than hard fruits. The average person who has had apples for months will not buy them in hot weather when fresh strawberries and cherries can be purchased at the same and often a lower rate. Had this extra quantity of fruit been sent earlier in the season the market might have been lowered, but the average would not have suffered to the same extent as it did through the heavy late shipments arriving when they were little wanted.

The fruit by these later steamers left much to be desired, and it is possible the shippers found some difficulty in filling the space contracted

for with really good fruit; but it is a great pity that a good quantity of it was ever shipped.

The earliest shipments were more advanced than usual, and the softer kinds were in a very ripe state when landed. Most of the fruit throughout the season arrived in an advanced state, although the condition of the harder varieties was good. The "Papanui," which carried a heavy cargo, broke down, and a large number of cases were unsaleable.

The prices for the shipments to the middle of June were, on the whole, good, and ranged as follows:—

	s.	d.	s.	d.
Cox's Orange Pippins ... ..	10	0	to	16 6
Special, 18s., 19s., 21s., and 25s.				
New York Pippins ... ..	8	0	to	16 0
Special, 17s. and 18s.				
Ribston Pippins ... ..	6	3	to	10 0
Scarlet Pearmain ... ..	9	0	to	13 6
Adams' Pearmain ... ..	8	6	to	13 6
Sturmer Pippins ... ..	9	0	to	13 0
French Crabs ... ..	8	9	to	13 6
Alexanders ... ..	7	0	to	13 0
Alfristons ... ..	6	6	to	13 6
Jonathans ... ..	9	0	to	14 0
Other kinds ... ..	7	6	to	12 6

After the middle of June, when the special steamers arrived, competition was met by English and Continental soft fruits, and this, coupled with the indifferent condition of a lot of our fruit and the quantities sent, all combined to bring about a heavy fall in prices.

I give the following prices of the last few steamers:—

	s.	d.	s.	d.
New York Pippins ... ..	4	0	to	8 6
Sturmer Pippins ... ..	3	3	to	9 6
Scarlet Pearmain ... ..	2	9	to	6 6
French Crabs ... ..	2	6	to	7 6
Other kinds ... ..	2	3	to	6 3

The fruit by the last steamer (the "Runic") was in good condition, but the market was then ruined, so far as apples were concerned, owing to the long delay in delivery due to the dock strike and the bad impression caused by the previous consignment by the "Dorset." When the consignment was delivered, not only were the buyers suspicious, but there was strong competition—not merely by soft fruits, but early English apples.

I must again call attention to the carelessness in grading and packing on the part of some of the shippers. Too much attention cannot be given to these important details. If they are not carefully carried out the fruit shifts, causing bruising. Well graded and packed parcels will always command higher prices than others that are not. I would also



again urge that the boxes should not be made with the parts fitting closely together. It should surely be easy to have the pieces cut a little narrower to enable spaces for ventilation and the circulation of air. There need be no extra cost, and the result would be to give the fruit a better chance in transit.

*Pears.*—This has been a bad year for Tasmanian pears, and with very few exceptions only the hard varieties have carried well. It would appear to be impossible for a reliable and profitable trade to be carried on in this fruit with this country under existing conditions. A trade cannot be built up in highly perishable produce when it is a mere hazard whether or not it will be delivered in a marketable condition. The successful carriage of apples from Australia is due largely to the (at times bitter) experiences gained by the Tasmanian shippers in the early days of the present export trade, and I fail to see why an equal amount of success should not be gained in certain kinds of dessert pears. Judging from the repeated failures I have seen in the attempts to land marketable dessert pears in this country from the State, it seems as if the correct methods of packing and treatment have yet to be discovered. The field is not a large one, like it is for apples, but it is sufficiently important for systematic experiment and special enquiry.

HERBERT W. ELY,

Secretary to the

Department of the Agent-General for Tasmania.



UCERNE will thrive in a variety of soils, under extremes of heat and cold, and under a greater range of annual rainfall than many crops will stand; but it requires soil depth for its wonderful roots; it "will not stand wet feet;" and has an extraordinary partiality for lime.—Exchange.

## FORESTRY NOTES.

By L. RODWAY, Government Botanist.

(Continued.)

## 11.—EUCALYPTS.

IN Europe forestry is fairly simple; the climate of the greater part is of sufficient winter severity to limit greatly the choice of trees. Yet there it has taken the experience of centuries to accumulate the technical knowledge of woodcraft, and still many questions are not decided. Take the matter of whether it is best to plant forests, where possible, of only one species (that is, pure forests), or will it pay better to plant mixed forests? Each system has its advocates, and a lot of argument is advanced in favour of each system. With us forestry is far more complex, for except in the case of our native trees no one can say what the ultimate result of forest-planting is likely to be. We can plant extensive areas of conifers, and be sure we shall reap a good harvest if a little commonsense is used in the planting and maintenance; for had the whole to be gathered in 10 years time through the incursion of disease, all the wood could be placed locally at a good price. But what the ultimate result of forestry will be, and how we shall have to modify our policy owing to the information that only time will provide, is a matter for the future. Still, we are not justified in neglecting to develop our lands because we cannot exactly foretell the success of each step. There is one thing fairly certain, namely, that it would be courting disaster somewhat to plant pure forests of any one exotic species where such a policy can be avoided. Bush fires can be guarded against, but the attack of insect pests in forests cannot very well be combated. These pests, though they will in some instances attack trees indiscriminately, more often live only on the one or closely-related trees. When this is so, a mixed wood affords a considerable protection from the spread of the pest. A pure forest may be composed of a species that does well for some years but fails to reach maturity, when the whole plantation will have to be taken off when still of inferior dimensions. While in a mixed wood it is probable some of the species would succeed well enough to be left till maturity. A third reason in favour of a mixture is that in many instances a greater amount of wood may be reaped from a given area. In a Eucalypt plantation (and we must bear in mind that these trees, not only from their intrinsic worth, but owing to their proved suitability to local conditions, will probably always be our mainstay) a mixture is very desirable. Gum-trees are lightly foliaged; that is, they permit a large amount of sunlight to pass through. Instead of this light being used for the support of a useless scrub it may be used to grow valuable shade-enduring trees to their mutual advantage. Spruces, Silver Firs, Cypressess and their allies, should do well in suitably constructed Eucalypt forests. In such a forest the undergrowth

would stimulate the Gum-trees to produce boles of the best character, while it was itself producing wood of a very desirable quality.

These indicated policies can only be worked out by experiment. We can never prove their success or failure by theory. We must chance some failure, but if we conduct our acts prudently nothing but good, payable knowledge can result.

## THIRD TASMANIAN EGG-LAYING COMPETITION.

THE following is the progress report for the fifth month of the third egg-laying competition conducted at the Springvale Tea Gardens, New Town.—

	Month of Oct.	Total.
1. White Leghorns, F. Hart, New Town ... ..	144	609
2. White Leghorns, A. G. Genders, Launceston ... ..	128	509
3. Silver Wyandottes, H. R. Taylor, Launceston ... ..	121	482
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	143	525
5. White Wyandottes, A. G. Genders, Launceston ... ..	112	536
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	146	591
7. S.C. Brown Leghorns, East Launceston Poultry Yards, Launceston ... ..	149	559
8. White Leghorns, Williams Bros., Fingal ... ..	146	504
9. White Leghorns, Briggs and Son, Longford ... ..	141	560
10. Silver Wyandottes, W. T. Stephens, Beulah ... ..	140	584
11. White Wyandottes, Rust Bros., Claremont ... ..	100	478
12. White Leghorns, R. J. Sheriff, Hagley ... ..	124	511
13. Black Orpingtons, G. Gilham, Launceston ... ..	117	388
14. White Leghorns, J. J. Harvey, Riana ... ..	111	395
15. White Leghorns, Mrs. B. Whittle, Launceston ... ..	136	498
16. R.C. Brown Leghorns, Briggs and Son, Longford ... ..	123	466
17. White Leghorns, A. Dickenson, South Bridgewater ... ..	119	504
18. White Leghorns, Reid and Stride, Liverpool-st., Hobart	116	550
19. White Leghorns, S. Ellis, Botany, N.S.W. ... ..	120	472
20. R.C. Black Orpingtons, W. T. Stephens, Beulah ... ..	117	355
21. Buff Orpingtons, A. G. Genders, Launceston ... ..	104	502
22. White Leghorns, O. H. Olson, Karoola ... ..	155	585
23. Black China Langshans, S. Ellis, Botany, N.S.W. ... ..	119	366
24. White Orpingtons, E. E. Roberts, Franklin ... ..	107	450
25. White Leghorns, Mr. B. Whittle, Launceston ... ..	145	603
26. White Leghorns, L. J. Dowling, Devonport ... ..	146	502
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ... ..	122	513
28. White Leghorns, J. Crisp, Launceston ... ..	149	577
29. White Leghorns, F. A. W. Gisborne, Risdon-road ... ..	148	572
30. S.C. Brown Leghorns, W. H. Hale, Strahan ... ..	141	581
31. White Leghorns, Mrs. Luke Williams, Moonah ... ..	158	572
32. Black Orpingtons, A. Battin, Launceston ... ..	149	616
33. White Leghorns, A. E. Terry, Sea View Hotel, Burnie	135	619

## WEATHER AND CROPS.

**CHERRY.**—At time of writing (November 7) the weather, as regards favourable growth, is wretched in the extreme, and causing much uneasiness. The land is parched for want of rain; many late frosts have been experienced, and for the past six weeks cold winds, mostly from the south. Many of the crops, especially hay, have gone off, while the late-sown are short. In some instances oats about 9 inches high came out in ear. From what can be learned about lamb-marking, the returns are very good.

**GLEN HUON.**—October opened with showery weather. About the middle of the month the weather was cold and unseasonable, snow falling on the adjacent hills. Strong westerly winds general for last 10 days. Rain fell on 19 days, the total rainfall for the month being 489 points—178 points fell on the night of 30th. The cold weather checked the growth of grass, though fruit has not suffered in any way. There are different opinions amongst orchardists as to the best time for spraying for black spot, some holding the opinion that it is better to spray while the blossom is on the trees, others when it is falling. However, all parties are agreed that spraying is absolutely necessary, and all have now finished spraying. There is fair promise of a heavy yield this season. It is too early to form an estimate of the raspberry crop, but so far the canes appear to be in a flourishing condition, so that only the price of fruit is causing any uneasiness.

**SOUTH BRUNI.**—This is not a large producing district. Apples are, perhaps, the leading export, and an increasing one. So far as blossom goes the present indications point to a heavy yield. It is noted that in one instance where pruning has been left undone blossom is showing right to the very tip of last year's wood. Apricots show a good setting of fruit; also plums. Peas are more largely planted than usual. Only a limited area of hay crops in. Grass growing well and plentiful. Cows in full profit, cream being sent to town to the factory, and some cheese being made. Weather very boisterous, rough, and some cold snaps. Some tender foliage has been damaged by the hail and cold winds.



**C**LOVER and other leguminous and turnip seed can be tested quickly by rolling in flannel and dipping in boiling water for four or five minutes. On examination good seeds will be found to have "sprouted," the cotyledons and radicle having burst out through their coverings. Dead or bad seeds will not so swell out.—McCONNELL.

## PORK EXPERIMENTS.

By C. WHITE, Newnham.

*Berkshire-Yorkshire Cross.*

(Five of Litter Farrowed May 13, 1911.)

Date of Weighing.	at	Live Weight	lbs.	Weight gained each weighing.	Remarks.
			lbs.		
May 13.....	Birth	...	11½	...	Average daily gain of the 5 pigs = 2·84 lb.
June 13.....	31 days	...	65	...	The first and the final weights in both instances were recorded.
July 13.....	61 days	...	150½	...	
Aug. 13.....	92 days	...	234	...	
Sept. 13.....	122 days	...	337	...	and verified by Messrs. Forsyth and Carnie
Oct. 3.....	142 days	...	415½	...	
Totals .....	142 days	...	415½	...	404

The litter was weaned July 13, and for 81 days the consumption and cost of feed was—

	£	s.	d.
15½ bush. sharps, at 1s. 1d. ....	0	17	0
5 bush. peameal, at 3s. 6d. ....	0	17	6
3½ bush. barley, at 3s. 6d. ....	0	12	3

To produce a gain of 404 lb. cost ... .. £2 6 9

Showing average cost per lb. of 1·40 pence. Allow 100 lb. for offal and cost of meat = 1·8 pence per lb.

NOTE.—(a) Thirty gallons of separated milk were used during the period (value not considered); (b) no allowance or charge is calculated for attendance on the pigs.

MEMO.—These notes also apply to the pure Berkshire test.

*Pure Berkshire Pigs.*

(Five of Litter Farrowed May 29.)

Date of Weighing.	at	Live Weight	lbs.	Weight gained each weighing.	Remarks.
			lbs.		
May 29.....	Birth	...	11½	...	Average daily gain of 5 pigs = 2·97 lb.
June 29.....	31 days	...	75	...	
July 29.....	61 days	...	162	...	
Aug. 29.....	92 days	...	265	...	
Sept. 29.....	122 days	...	364	...	
Oct. 3.....	127 days	...	389	...	
Totals .....	126 days	...	339	...	377½

Litter weaned July 29, and for 65 succeeding days the consumption and cost of feed was—

	£	s.	d.
17 bush. sharps, at 1s. 1d. ....	0	18	5
3½ bush. peameal, at 3s. 6d. ....	0	11	4½
1½ bush. barley, at 3s. 6d. ....	0	5	3

To produce a gain of 377½ lb. cost ... .. £1 15 0½

Showing average cost per lb. (live weight), 1·11 pence. Allow 100 lb. for offal and cost of meat, per lb. = 1·5 pence (nearly).

In previous tests made during winter season, the results of which were published, the cost per lb. of production was so great than an actual loss was shown on calculations made at market rates for pork.

The results now obtained are, however, very encouraging, and are so very different to those before obtained that I am prompted to look into the surroundings. I feel satisfied, for one thing, that there is a larger consumption of food for a slower development in the colder winter months, even with dry, warm housing. Then in these two cases, I tested the merits of cooked and raw foods. At first the feed was all raw; then a change was made to cooked food, when a decrease took place in the rate of gain. I then returned to raw food, but the animals went off their "tucker," so finally I fed half raw and half cooked, with excellent effect. The pigs were weighed individually on each occasion, but only the total weight of the litter was recorded in my books. I noted, though, that the pigs varied very much at the first weighing, and also that there was great unevenness in weights as they advanced. In the crossbreds particularly the second smallest soon began to thrive, and being a white pig its course was more easily noted. In the end it came 13 lb. a winner in its pen. Similar results were obtained with the purebreds, the weights varying from 69 lb. to 97 lb. Both litters were sired by the same boar, and it will be seen that at the end of 122 days the purebred's litter had an advantage of 27 lb. over the cross (but it held also the lightest-weight pig, at 69 lb.).

One effect of this unevenness in weights on my mind is to cause a doubt on those records which have shown such "regularity in size and form" of litters experimented with. I mean, that probably they are the pick of more than one sow's offspring.

From result of previous live weight tests I find that about 20 lb. per pig may be allowed for offal; thus in each pen 100 lb. may be deducted to show the actual weight of meat.

## EAST TAMAR PRODUCERS' ASSOCIATION.

October 9.

**PRESENT.**--The President (Mr. D. T. Medwin) and about 30 members.

**DESTRUCTION OF SPARROWS.**--The use of poisoned grain well scattered was recommended, and the destruction of blackberry hedges and other harbours for the birds.

**DESTROYING FERNS.**--In this district July cutting is found most effective, and the ferns must not be "burned off." Gum-sprouts to be knocked off when sap is flowing.

**FRUIT-HANDLING.**--Resolved, "That strong representations be made to ship-owners in each State to use the greatest possible care in the handling of all fruit in shipment."

**FARRIERS.**--Resolved, "That this Association supports all the propositions in the circular, but desires to suggest that a practical farrier should be appointed to work with the veterinary surgeon in the examination of candidates for certificates."

**MARKETING OF PRODUCE.**--The following resolution was passed unanimously:--"That it is advisable, for the benefit of producers generally, that Parliament should establish in London an 'Export Producers' Agency,' to keenly watch over the handling and selling of exported fruits and other food-stuffs, and this Association asks the members for Bass and South Esk to support the motion at present before the House of Assembly on this subject."

## BOARDS OF AGRICULTURE.

THE following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	H. Bennell	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Cressy	James Anderson	Cressy
Ellendale	H. L. Swifte	Ellendale
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
East Tamar	W. Carnie	Newnham
Elliott	L. H. Shepherd	Elliott
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Geoveston	F. Hyndes	Geoveston
Glengarry	W. Wheldon	Glengarry
Glen Huon	P. H. Young	Glen Huon
Glenorchy	Hon. W. Clifford	Glenorchy
Irish Town	E. L. Smith	Irish Town
Kettering	H. Shepherd	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
King Island	A. Bertram	King Island
Lilydale	S. Wellington	Lilydale
Lovett	W. O. Gilbert	Lovett
Lymington South	T. Burnaby	Lymington
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marawah	E. Bonhôte	Marawah
Mt. Pleasant	B. B. Morrison	York Plains
Mt. Seymour	W. Wilson	Mt. Seymour
Mowbray	G. H. Boatwright	Smithton
Mooreville-road	W. White	C/o W. Spinks, Mooreville-road
New Ground	J. L. Thomas	Moriarty
North Motton	O. Waters	North Motton
Nook	J. H. Lyons	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Nubeena	W. J. Tomkinson	Nubeena
Premaydena	T. F. Locke	Premaydena
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgley	W. Morris	Ridgley
Scottsdale	J. B. Hayes	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
Sheffield	O. Ridley	Sheffield
South Preston	F. Tongs	South Preston
St. Helens	C. R. Bowling	St. Helens
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carins	Myrtle Bank
Sprent	A. Lee	Sprent
Staverton	T. Wootton	Staverton

## BOARDS OF AGRICULTURE continued.

BOARD.	HON. SECRETARY.	ADDRESS.
St. Leonards	W. J. Figgis	St. Leonards
Stoodley	J. Leo	Stoodley
Stowport	J. G. Pearson	Round Hill, Burnie
South Springfield	J. Molphy	South Springfield
South Bruni	E. H. Pybus	Adventure Bay
Table Cape	H. J. Smith	Wynyard
Tyenna	F. M. Smith	Tyenna
Upper Mountain River	A. Griffiths	Grove
Wattle Grove	K. Lord	Wattle Grove (Lower)
Vest Tamar	H. Robinson	Frankford
Wilmot	D. E. Forbes	Wilmot
Yolla	D. T. Jones	Yolla

## Avoca, October 4.

PRESENT. MESSRS. J. Conway (Chairman), W. Ayers, E. J. Adams, C. Shelton, L. Herbert, Jas. McCarthy, A. T. Rubenack, H. E. Malkin, and Secretary.

CORN-SACKS.—Resolved, "That this Board approves of the Federal Government being urged to legislate *re* size of corn-sacks."

SPARROW PEST.—Some members considered arsenic the best, and others phosphorised oats.

CAPE WEED.—Resolved, "That the Secretary write to the Fingal Council *re* the Cape weed in the Avoca streets."

NEW MEMBER.—Mr. T. Rubenack.

## Cressy, November 6.

PRESENT. MESSRS. H. Hingston (Chairman), S. Brumby, W. J. Hingston, J. Shipp, G. Gill, H. Wilson, W. Wheeler, F. Burton, L. Lee, G. Hill, J. H. Summers, and Jas. Anderson (Hon. Secretary).

CORN-SACKS.—The matter was generally discussed, and the present standard sack condemned. On the motion of Mr. S. Brumby, the following resolution was passed:—"That this Board would gladly endorse a standard bag to hold 3 bushels of wheat."

SPARROW PEST.—Members consider it advisable to poison in May, June, and July. The poison must be judiciously laid in small quantities, and to sprinkle a little behind the drill. In this district sparrow-shooting matches have helped to destroy the pest.

FARRIERS.—Resolved, "That every facility should be given to blacksmiths to qualify as farriers, but that no compulsion be used."

## Ellendale, October 11.

PRESENT.—MESSRS. Geo. Cook (Chairman), Stanfield, E. Raynor, J. Tomlin, E. Saunders, Geo. Clark, J. F. Barratt, G. E. Clark, C. J. Holmes, J. E. Cooper, J. E. Cooper, Jun., D. McConnell, W. S. Holmes, Jas. Holmes, E. Clark, and H. L. Swifte (Hon. Secretary).

NEW MEMBERS.—Messrs. Walter Tomlin, T. Johnson, W. S. Holmes, J. F. Barratt, G. W. Cooper, and W. R. Donaghy.

FERNS.—The general opinion was that ferns can only be destroyed by continual cutting, especially when young. Mr. C. J. Holmes thought they could be kept under better on cultivated land than on that which had been broken up; and Messrs. Cook and G. Clark thought bruising while young and tender was better than cutting.

STOPPING GUMS FROM SPROUTING.—Mr. Saunders said he found that the most successful plan was to cut scrub during the winter, and leave it as late



as possible during the following autumn to burn. By adopting this plan he found no sprouts grew. Mr. Stanfield said, in the case of wattles they should be cut as late in the season as possible, before the sap goes down. The following season there would be some growth, but a third cutting would eradicate them.

### Forth, October 6.

**PRESENT.**—Messrs. M. Barker (Chairman), E. Vertigan, W. Kennedy, A. Cullen, G. Wellard, W. Cash, T. Bowden, P. H. Smith, and H. A. Vertigan (Hon. Secretary).

**NEW MEMBERS.**—Messrs. P. H. Smith, J. W. Barker, M. Sullivan, E. Hays, and R. Hays.

**TESTER.**—The committee reported recommending that Mr. G. Wellard take charge of the tester for the present season.

**FARRIERS.**—Mr. G. Wellard proposed, "That this Board favour farriers holding certificates of competency, provided that non-certificated farriers be not debarred from practice." Seconded by Mr. Kennedy.—Carried.

**SPARROW PEST.**—Mr. Kennedy moved, "That the best way to cope with the sparrow pest is to lay poison throughout the district the same day." Seconded by Mr. Cash, and carried.

**FERNS AND SPROUTS ON GUM-TREES.**—Mr. Wellard moved, "That this Board is of opinion that continuous cutting of ferns and the knocking of the gum-sprouts with the axe is the only efficient way of getting rid of the trouble in the rough land." Seconded by Mr. H. Vertigan, and carried.

**SIZE OF CORN-SACKS.**—Mr. Kennedy moved, "That the sacks be made to hold 180 lb. of wheat." Seconded by Mr. H. Vertigan. The Chairman moved as an amendment, "That the sack be made to hold 200 lb." Seconded by Mr. E. Vertigan, and carried.

**POTATO-MISSES.**—Mr. Kennedy moved, "That information be sought from the Agricultural Department as to the cause, and, if possible, a remedy, for potatoes missing." He referred to the set producing a small potato instead of a stalk. Seconded by Mr. E. Vertigan, and carried.

**PLOT.**—Mr. Wellard moved, "That the Director of Agriculture be asked to issue a certificate for the best plot of some crop in the district." Seconded by Mr. Cash, and carried.

**PAPER.**—Mr. Cash read an interesting paper on market gardening. At the close several took part in a discussion thereon.

### Glen Huon, October 25 and 28.

*October 25.*

**FARRIERS.**—Resolved, "That this Board is quite in accord with the desirability of farriers passing an examination."

**FERNS AND GUM-SPROUTS.**—The best practical way for both is to keep cutting or otherwise destroying the fresh growths.

*October 28.*

**PRESENT.**—Messrs. E. R. Shield (Chairman), T. Brown, P. Woolley, M. Watson, A. Evans, H. Brown, W. Watson, J. E. Wright, P. Buxton, P. H. Young (Hon. Secretary).

**NEW MEMBER.**—Mr. A. Wise.

**BITTER PIT.**—The subject of bitter pit investigation was discussed. The Chairman raised the question as to whether the investigations undertaken by Mr. McAlpine were to be confined to bitter pit, or to include brown rot, which is commonly called bitter pit. He wrote to the Director asking to be clearly informed on this point, as he felt sure that many of the answers to the

questions asked would be answered in the belief that brown rot was bitter pit. The Chairman pointed out that there was a fundamental difference between the two. The Director in his reply said that the point raised by Mr. Shield was a very important one, and he had forwarded a copy of remarks to Mr. McAlpine, so that the Board will in due course get a reply giving the desired information.

### Hobart, October 25.

**PRESENT.**—Messrs. L. Rodway (Chairman), T. Williamson (Vice-Chairman), J. Wardman, G. Rowntree, F. E. Ward, D. Balchen, R. Butler, C. Wessing, and W. H. Connor (Hon. Secretary).

**NEW MEMBER.**—Mr. C. Wessing.

**BITTER PIT.**—Circular from Agricultural Department containing questions on the above disease, which were considered *seriatim*. Mr. C. Wessing, who has been observing this disease with interest, gave answers to most of the questions.

**FRUIT-HANDLING.**—It was decided to suggest that growers should send somebody occasionally to the Hobart wharf, especially during the English shipping season, to see for themselves, and if not handled satisfactorily, to give their freight to some other carrier.

**CARROT DISEASE.**—Mr. C. Wessing exhibited a carrot badly affected with "sclerotium." The Chairman very minutely described the nature and manner of spreading this fungus disease.

**WHITE WEED.**—Attention was drawn to the very extensive way this weed is spreading in North Hobart, as nothing seems to be done by the authorities to keep it in check.

### Kindred, October 11.

**PRESENT.**—Messrs. G. Medwin (Chairman), G. Weindorfer, T. B. Yaxley, H. Vertigan, G. Medwin, D. G. Cowle, A. Mott, N. E. Loane, C. Foster, H. Arnold, L. Vertigan, J. J. Filluel, I. Howard, F. Daniels, and C. C. Polden (Hon. Secretary).

**SPARROWS.**—Mr. G. Weindorfer moved, and Mr. Yaxley seconded, "That in regard to the suggestion for the destruction of the sparrow pest, the following dates be fixed as sparrow-destroying days, 1st April, 15th June, and 15th August; and that the Department draw the attention of all Branch Boards to these dates one month before the days fixed for poisoning."

**DESTROYING BRACKEN FERNS.**—The members were of opinion that they should be cut in the month of November, and after that while the shoots are young until autumn.

**FRUIT-HANDLING.**—Mr. Weindorfer moved, and Mr. C. Foster seconded, "That this Board is in full sympathy with the Wattle Grove Board in regard to the rough treatment of fruit for shipment, but is unable to offer any suggestions, since farmers are having the same trouble in regard to the treatment of potatoes, and are helpless."

**MANURE-BAGS.**—Mr. I. Howard moved, "That the Department be asked to endeavour to get the weight of manure put in sacks reduced from 2 cwt., which is put in some sacks at present, to 112 lb., as the sacks often have to be handled on the stations, also farms, single-handed, and 2 cwt. is too heavy for one to lift." Seconded by G. Weindorfer.

Mr. Weindorfer moved, and J. J. Filluel seconded, "That the Department be asked to bring about an improvement in handling potatoes for shipment, and this Board suggests that the present method of lifting the potato-bags in slings into the ship's hold be discarded, and the tray system be adopted instead."

**Lymington, October 4.**

**PRESENT.**—Messrs. J. Parnham (Chairman), F. Stanton, C. Devereaux, W. Kruse, S. Cross, Stubbings, W. Hornby, and the Hon. Secretary (Mr. T. Burnaby).

**SPARROW PEST.**—This Board favours phosphorised grain.

**STANDARD SIZE OF CORN-SACKS.**—The Board recommends 3 bushels as the standard size.

**BITTER PIT.**—The Secretary was requested to write for a clear definition of the disease known as "bitter pit."

**RED OIL.**—Mr. C. Devereaux requested the Secretary to enquire if the Department would sample different kinds of red oil of various prices, with a view to finding out their efficiency and strength for spraying purposes.

**Mount Pleasant, October 7, November 3 and 4.***October 7.*

**PRESENT.**—Messrs. J. N. Propsting (Chairman), F. Cornish, C. Gregg, C. Smith, W. Howard, D. Hamilton, Alex. Wilson, Jos. Parker, C. Barwick, W. Groves, Geo. Propsting, W. Bush, P. McAuliffe, Miss Dean, and Mr. B. Morrison (Hon. Secretary).

**VISITORS.**—Messrs. Smith, Dean, and E. Jones.

**NEW MEMBERS.**—Messrs. E. Jones, W. A. Jones, and M. Smith.

**FERNS AND SPROUTS.**—It was generally agreed that with ferns the growing of peas or potatoes gave the best results. With gum-sprouts it was agreed that in some seasons, no matter what time of the year the sprouting was done, no results were obtained, the gums growing as well as ever. All agreed with Mr. Lodge's statement, that pulling them up with a team of bullocks was the best.

**SUBSCRIPTION PAID.**—Mr. E. Jones.

*November 3.*

**SOCIAL.**—The Board of Agriculture held its first social in the State school-room this evening, and had a huge success. There was a very large attendance, over 90 being present, out of which only four were not residents of the estate.

The Chairman of the Board (Mr. J. N. Propsting) in opening the proceedings, said that the object of the Board in holding these gatherings was to make those present take an interest in their work, especially the younger generation, who, as they grew up, would learn all that was useful in the farming life, and be able to take the place of their elders, and do good work on the Board.

*November 4.*

**PRESENT.**—Messrs. J. N. Propsting (Chairman), H. Fletcher, C. F. S. Headlam, P. McAuliffe, C. Barwick, W. Bush, C. Groves (2), Jos. Parker, C. Lodge, D. Hamilton, F. Cornish, W. Howard, W. J. Barwick, W. Johnson, Miss Dean, and Mr. B. Morrison (Hon. Secretary).

**VISITORS.**—The Agricultural Expert (Mr. Colbourn) and between 30 and 40 others, including a fair sprinkling of ladies.

**NEW MEMBER.**—Mr. J. Gregg.

**SUBSCRIPTIONS PAID.**—Messrs. J. Gregg and M. Smith.

**LECTURE.**—Mr. Colbourn then delivered his lecture on "Manures," illustrating same with lantern slides. He was listened to with marked attention. At the close of the lecture Mr. Colbourn answered various questions, and was afterwards accorded a very hearty vote of thanks.

**RAINFALL** (kindly supplied by Mr. Fletcher).—October, 1911: 7 wet days; 115 points. October, 1910: 11 wet days; 173 points.

**Nook.**

**PRESENT.**—Messrs. J. Shea (Chairman), G. Hamilton, H. Williams, R. Lunson, J. Aiken, J. Carey, T. Thompson, and the Secretary (Mr. J. H. Lyons).

**FARRIERS.**—The report in regard to above should have read “all farriers should pass a veterinary surgeon before being allowed the term certificated farrier.”

**HANDLING FRUIT.**—The Board is in sympathy with fruit-shippers striving to ensure better handling of their produce.

**Northdown, October 13.**

**PRESENT.**—Messrs. T. McDonald (Chairman *pro tem.*), J. Chaplain, W. Morris, J. Long, A. Hall, G. R. Bray, W. Nolan, R. Gorringer, and H. J. Henri (Hon. Secretary).

**CORN-SACK.**—Members unanimously decided that the standard size of a corn-sack be 200 lb.

**SPARROW PEST.**—Resolved, “That it be a recommendation from this Board that there be definite legislation to compel landowners to poison during the months of May and August.”

**FERNS AND GUM-SPROUTS.**—Members are of opinion that March is the month to which attention should be given to the destruction of the foregoing.

**South Bruni, October 21.**

**PRESENT.**—Messrs. W. H. Vaughan, W. Vaughan, C. W. A. McGowan, E. J. Dillon, J. J. Dillon, and E. H. Pybus (Hon. Secretary).

**NEW MEMBERS.**—Messrs. P. Binns and W. Henessey.

**VISITORS.**—Messrs. T. H. F. and R. Dillon, C. and J. Dwyer, P. Henessey, Rev. C. Lumsden, F. Delahunty, and J. Mann.

**LECTURE.**—The Potato Expert (Mr. Ulbrich) gave an instructive and interesting lecture on “Potato-culture.” The leading points emphasised were:—Selection and care of seed, greening and sprouting, wide planting, cultivation, manuring, and spraying.

**South Preston, October 9.**

**SPARROW PEST.**—Members thought it should be compulsory for every farmer to poison during the same week for one week in the year.

**CORN-SACKS.**—Resolved, “That bags should be made to hold 200 lb., and that it be made penal to exceed 200 lb. weight in each sack.”

**FERNS AND SPROUTS.**—Members were of the opinion that February is the best time to cut same.

**Staverton, November 3.**

**FARRIERS' CERTIFICATES.**—Resolved, “That this Board does not consider it necessary that a blacksmith should have a certificate for shoeing horses.”

**FERNS AND GUM-SPROUTS.**—Resolved, “That the best time to cut ferns is January and June; the best time to destroy gum-sprouts is in March.”

**St. Patrick's River and Myrtle Bank, November 6.**

**PRESENT.**—Mr. R. Skemp (Vice-Chairman), Messrs. S. Skemp, S. Teece, A. Alexander, Roy Tole, C. Faulkner, W. Imlach, P. G. Nelson, A. Nelson, and W. A. Carins (Hon. Secretary).

**PRODUCE SHOW.**—Messrs. R. Skemp and Freiboth were elected hon. secretaries, and a vote of thanks was passed to Mr. W. A. Carins for his past services in that capacity. It was resolved to ask four ladies to advise the Board on needlework for the Board's autumn show.

**MILKING COMPETITION.**—This was fixed for early in January.

**WEATHER.**—The monthly report by the Board's observer, Mr. W. Richards, was read, by which it appeared cold winter weather had prevailed last month, with dry southerly winds, which checked all growth, and was probably responsible for the general failure of some seeds sent down by the Department for trial.

**FEEDING PIGS ON BUTCHERS' OFFAL.**—The Board regretted more publicity had not been given to this subject when it was before parliament, as it practically deprives the local farmers of a payable market for carcase pork.

#### Table Cape, October 8.

**PRESENT.**—Mr. J. T. Johnson (Warden), in the chair, Messrs. W. T. Miller, B. H. Bramich, J. D. Telford, Wade, H. J. Smith (Hon. Secretary), and Captain Thomson.

**APOLOGY.**—Mr. J. T. Tyrrell.

**CORN-SACKS.**—Resolved, "That the Board supports the proposal."

**DESTRUCTION OF SPARROWS.**—Oatmeal poisoned with arsenic and sweetened proved successful.

**DESTRUCTION OF BRACKEN FERN.**—If the land can be ploughed, December is the best time. If land cannot be ploughed, cut the bracken in early summer and again late in autumn.

**DESTRUCTION OF SHOOTS ON GUM.**—Shoots should be broken down when the sap is up—about March.

#### Upper Mountain River, November 6.

**PRESENT.**—Messrs. G. S. Parsons (Chairman), L. Schmidt, C. Schmidt, E. H. Schmidt, A. Schmidt, Jun., Gloucester Oates, Jas. Stevenson, and A. Griffiths (Hon. Secretary).

**CORN-SACKS.**—Resolved, "That this Board is in favour of application being made to the Federal Government asking them to legislate for a standard size in corn-sacks, which they recommend should hold either 3 bushels or 200 lb. net weight."

**SPARROWS.**—Resolved, "That this Board knows of no effectual method of eradicating the sparrow pest other than the laying of poisoned grain, but does not favour same, as harmless birds also suffer."

**FERNS.**—For the eradication of ferns, this Board recommends the continual cutting or bruising of the young ferns as often as they appear above ground; and to eradicate sprouts on gums, the bruising of same with head of axe or other blunt instrument as often as they appear.

**FRUIT-HANDLING.**—This Board strongly recommends that the shipping companies who carry fruit be asked to supply foot-planks wherever required, and prohibit the walking or standing on cases; also, that they instruct the stevedores to give better supervision in the handling of the fruit by the lumpers.

### NORTH ESK PRODUCERS' ASSOCIATION.

October 2.

**PRESENT.**—Mr. Boutflower (in the chair), Messrs. H. Young, E. G. Young, R. Young, H. Stapleton, S. Caswell, W. Caswell, and the Secretary (Mr. W. J. Figgis).

**CORRESPONDENCE.**—The Chairman read replies from the Director of Agriculture to the questions *re* rape, Japanese millet, maize, and fertilisers.

**ELECTION OF OFFICERS.**—Resolved, "That the Chairman take the position of Treasurer."

**NEW MEMBERS.**—Messrs. W. J. Connell, S. W. Margetts, F. Caswell, R. W. Laird, and Miss Bushman.

**ANNUAL MEETING.**—Proposed by Mr. H. Young, and seconded by Mr. Stapleton, "That the annual meeting of the society be in the month of April; and that the subscription until that time be 1s." It was resolved that the Chairman and Secretary form the executive of the society to act in any case of emergency.

## TAMAR FARMERS' AND FRUITGROWERS' ASSOCIATION.

October 7.

The President (Mr. W. Gowans) in the chair

**SHOW.**—The date was fixed for the last Wednesday in March.

**CORN-SACKS.**—Mr. Wing moved, "That standard grain bags be made large enough to hold 200 lb. of wheat or peas, as passed by the Federal Parliament, which at present they do not." This was seconded by Mr. Atkinson, and carried.

October 17.

The executive committee of the Tamar Farmers' and Fruitgrowers' Association met at Exeter on above date.

**PRESENT.**—Messrs. S. Traill, W. Gowans, E. Kerrison, H. Atkinson, A. S. Murray, W. Hill, J. Stevenson, B. Camm, E. H. Hodgetts, J. Ashman, J. Lutwyche, T. Squires, A. Priestley, V. Plummer, and H. Robinson.

**ELECTION OF OFFICERS.**—A ballot was then taken, the voting being nine in favour of Mr. Robinson and four for Mr. Murray. The following committees were then appointed:—Finance: Messrs. R. V. Jillett, T. J. Connelly, T. Stewart, W. Gowans, and H. Robinson. Works: Messrs. Traill, Atkinson, Gowans, Murray, and H. Robinson.

**DESTROYING FERNS AND GUM-SPROUTS, &c.**—There was a difference of opinion as to when ferns should be cut. Frequent cuttings at different periods were desirable. Some thought May or June, others December and January. Gum-sprouts should be bruised off during May and June.

**WAX MATCHES.**—The proposal of the Rubicon Board of Agriculture to prohibit the sale of wax matches because of their explosive nature was endorsed.

**FARRIERS' COMPETENCY.**—Three questions were submitted with reference to farriers possessing a proper knowledge of shoeing horses, and the members decided on a majority resolution to affirm the proposals as follows:—"That such certificates were desirable in the interests of the owners and the animals themselves, but amateurs should not be debarred from practising."

**SPARROW PEST.**—The sparrow pest was considered to be something like the rabbit pest, in that it required the unceasing vigilance of the farmer to keep them down to reasonable proportions. The judicious scattering of a little poisoned grain during winter, when food was comparatively scarce, and also when sowing a paddock with grain, would often result in numbers being destroyed. Shooting amongst them in their right haunts and at any opportune time, cutting down and destroying otherwise their frequenting places, would drive them, and tend to prevent nesting at breeding time. High hedges were considered undesirable, and should be cut down to "fence" height, and annually trimmed.

**HANDLING FRUIT.**—The question submitted by the Wattle Grove Board of Agriculture with reference to taking some action to mitigate the evils arising out of rough handling of fruit after it leaves the growers' hands was dealt with in the terms of the following resolution:—"That the General Secretary of the Agricultural Department be asked to urge the Commissioner of Railways, shipping agents, and others through whom the fruit passes to request their employees to consider the interests of the producers, on whom they are largely dependent for a living, by exercising more care in handling fruit and all other perishable products."

## METEOROLOGICAL.

## RAINFALL IN TASMANIA DURING OCTOBER, 1911 AND 1910.

\* Telegraphic only.

Station.	1911.	Wet Days.	1910.	Average.
<b>NORTHERN.</b>				
Marrawah ... ..	393	18	445	—
Cape Grim ... ..	245	13	238	449
Sunny Hills ... ..	441	20	452	315
Irish Town ... ..	446	22	473	—
Black River ... ..	310	14	248	304
Stanley ... ..	241	18	217	297
Flowerdale ... ..	—	—	290	—
Flowerdale Upper ... ..	253	13	354	479
Yolla ... ..	318	23	499	646
Wynyard ... ..	221	11	293	—
Burnie ... ..	161	10	314	377
Ridgley ... ..	263	14	345	—
Ulverstone ... ..	154	9	260	422
Kindred ... ..	203	12	315	—
Devonport ... ..	131	10	241	355
Latrobe ... ..	—	—	209	319
Northdown ... ..	108	7	199	238
Beaconsfield ... ..	86	6	268	—
Low Head ... ..	—	—	222	237
Black Bluff ... ..	—	—	725	—
Moina ... ..	—	—	547	—
Central Castra ... ..	259	13	377	480
Wilmot ... ..	273	11	403	—
Gawler ... ..	—	—	305	458
Sheffield ... ..	168	8	328	—
Deloraine ... ..	—	—	305	343
Caveside ... ..	181	8	281	—
Cressy ... ..	98	7	180	228
Longford ... ..	93	7	195	261
Westbury ... ..	128	8	256	320
Carrick ... ..	87	8	206	—
Launceston ... ..	99	6	237	268
Glengarry ... ..	132	9	345	392
Frankford ... ..	127	9	217	369
Exeter ... ..	98	6	258	—
Lilydale ... ..	179	9	339	318
St. Patrick's River ... ..	16	8	422	—
Springfield ... ..	189	15	467	600
Springfield South ... ..	—	—	442	—
Scottsdale ... ..	202	11	404	423
Bransholm ... ..	185	10	438	—
Ringarooma ... ..	254	9	449	449
<b>WEST COAST—MOUNTAIN REGION.</b>				
Temma ... ..	235	20	456	—
Mt. Balfour ... ..	—	—	828	—
Magnet ... ..	841	18	910	—
Waratah ... ..	952	26	851	833
Que ... ..	729	22	—	—
Tullah ... ..	782	19	—	—
Renison Bell ... ..	936	21	—	—
Mt. Read ... ..	1427	25	1094	921
Chester ... ..	853	26	—	—
Dundas ... ..	931	24	—	—
Stanley Reward ... ..	915	22	—	—
Zeehan ... ..	929	24	982	954

## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Mt. Lyell ... ..	1121	26	1254	1143
Queenstown ... ..	962	24	1087	—
Strahan ... ..	548	19	596	599
Cape Sorell ... ..	*245	—	622	487
Pillinger ... ..	669	21	873	—
CENTRAL PLATEAU.				
Great Lake ... ..	—	—	—	369
Circle ... ..	—	—	401	—
Roscarboro ... ..	—	—	350	—
Clarence ... ..	—	—	266	—
Bronte ... ..	346	8	350	—
Steppes ... ..	287	13	227	—
McGuire's Marsh ... ..	281	11	240	—
Woods' Quoin ... ..	208	11	204	—
Interlaken ... ..	—	—	160	372
Dog's Head ... ..	154	9	149	—
DERWENT VALLEY.				
Glenmark ... ..	—	—	376	—
Strickland ... ..	—	—	364	—
Basham ... ..	—	—	379	441
Osterley ... ..	284	6	268	—
Bothwell ... ..	171	13	147	210
Cleveland ... ..	296	10	398	—
Hamilton ... ..	222	13	162	195
Ellendale ... ..	390	17	338	413
Glenora ... ..	260	13	203	230
Belmont ... ..	166	4	172	185
Clarendon ... ..	227	9	146	208
New Norfolk ... ..	236	13	225	242
Uxbridge ... ..	346	13	407	384
Lachlan ... ..	231	13	264	309
SOUTH-EASTERN.				
South Bruni ... ..	*336	—	263	338
Adventure Bay ... ..	539	19	365	—
Southport ... ..	*404	—	312	376
Lunnawanna ... ..	402	9	171	—
Port Esperance ... ..	430	14	298	379
Port Cygnet ... ..	418	15	280	—
Petchey's Bay ... ..	413	19	277	—
Middleton Channel ... ..	380	22	285	—
Kettering ... ..	544	20	368	—
Glen Huon ... ..	489	19	343	328
Kingston ... ..	348	17	—	—
Mt. Nelson ... ..	333	10	223	242
Mt. Wellington (Gap) ... ..	497	—	486	512
The Springs ... ..	574	23	472	553
Hobart Observatory ... ..	244	18	226	216
Hobart Botanical Gardens ... ..	277	12	189	203
Hobart Waterworks ... ..	445	20	320	364
Glenorchy ... ..	*224	—	199	326
Bellerive ... ..	310	18	131	225
Lindisfarne ... ..	262	9	141	—
Rokeby ... ..	191	6	166	215
Sandford ... ..	208	8	197	222
Premaydena ... ..	333	12	198	326
Carnarvon ... ..	400	20	308	306
Sorell ... ..	209	11	208	219
Cambridge ... ..	234	18	275	220
Craigow ... ..	—	—	119	—



## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Richmond ... ..	225	12	157	197
Brighton ... ..	176	7	153	223
Tea Tree ... ..	159	6	168	—
Bagdad ... ..	207	7	155	244
Broadmarsh ... ..	199	10	172	—
Kempton ... ..	138	8	127	194
Colebrook ... ..	162	12	—	—
<b>MIDLAND.</b>				
Spring Hill ... ..	129	7	189	253
Jericho ... ..	117	5	141	—
Mt. Seymour ... ..	119	11	201	319
Oatlands ... ..	134	16	152	212
Bow Hill ... ..	170	7	172	—
Andover ... ..	—	—	222	243
Woodbury ... ..	102	9	117	—
Beaufront (Ross) ... ..	38	3	161	180
Bendeemer ... ..	129	9	235	308
Glen Connell ... ..	—	—	191	288
Campbell Town ... ..	48	5	238	208
Hanfeth ... ..	—	—	163	197
<b>EAST COAST.</b>				
Kellevie ... ..	—	—	199	—
Buckland ... ..	159	12	159	—
Triabunna ... ..	164	5	123	244
Swansea ... ..	127	13	178	221
Riversdale ... ..	110	5	140	212
Cranbrook ... ..	—	—	133	238
Lake Leake ... ..	96	9	272	304
Ormley ... ..	74	7	255	225
Fingal ... ..	—	—	187	227
Cullenswood ... ..	206	14	216	225
St. Marys ... ..	—	—	249	—
Tower Hill ... ..	160	5	258	—
Mathinna ... ..	140	7	255	296
Scamander ... ..	160	4	136	198
St. Helens ... ..	234	8	191	245
Gould's Country ... ..	178	6	394	437
Lottah ... ..	253	11	511	513
Eddystone Point ... ..	*376	—	376	244
Boobyalla ... ..	105	5	189	—
Louisville ... ..	164	12	—	—
<b>KING ISLAND.</b>				
Cape Wickham ... ..	163	17	240	196
Yambacoon ... ..	203	16	207	203
Currie Harbour ... ..	170	19	291	—
Monk Breton ... ..	—	—	309	—
Surprise Bay ... ..	245	2	283	—
The Chalet ... ..	152	17	287	—
<b>FLINDERS ISLAND.</b>				
The Hermitage ... ..	—	—	299	—
Thule ... ..	—	—	273	245
White Mark ... ..	—	—	216	—
<b>OTHER ISLANDS.</b>				
Kent Group ... ..	—	—	250	—
Goose Island ... ..	—	—	247	189
Cape Barren Island ... ..	—	—	261	—
Swan Island ... ..	—	—	278	—
Maatsuyker Island ... ..	—	—	498	375

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EDITED BY L. A. EVANS.

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## EDITOR'S NOTICE.

"The Agricultural Gazette" is the Official Journal of the Department of Agriculture. It will be issued monthly, and will contain reports of meetings of the various Boards of Agriculture. These reports, together with special reports from Experts, and selected articles from official exchanges and other publications, will be revised by the Editor of the Journal.

All other matters relating to the reading columns of the "Gazette" must be addressed to the Editor, Hobart.

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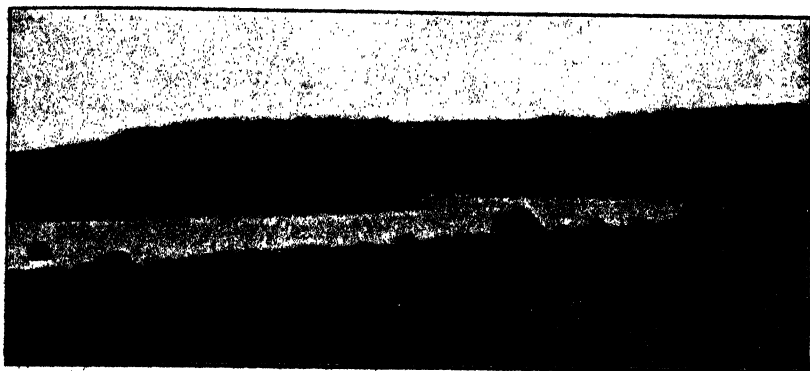
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## SOME POINTS WORTH THE ATTENTION OF TASMANIAN FARMERS.

By H. J. COLBOURN, Agricultural Chemist.

*(Continued.)*

### LAND DRAINAGE.

**D**RAINAGE takes precedence of all other forms of improving the condition of land, assuming that the latter is liable to be waterlogged at any period of the year, a condition of things easily recognised when the water lies upon its surface, but not always noticed when the mischief is connected with the subsoil only. In the latter case it is none the less detrimental if the roots of the crops growing on the surface come in contact with stagnant water, which is liable to contain injurious substances in solution, and even if it does not the roots are actually liable to be drowned by the excess of moisture. The substances likely to be detrimental to plant life when dissolved in the soil-water are magnesian and sodium salts, which sometimes exist in such quantity as to render the water brackish. This is a condition likely to exist in flat marshy tracts near the sea, but also liable to occur in inland districts. When much vegetable matter, resulting from the decay of mosses and other plants of low organisation, abounds in undrained soils, an acid condition of the latter is brought about, well known to be inimical to



all classes of farm crops. This condition can only be removed by draining, and it may also require the assistance of lime to entirely eliminate it. A very moderate percentage of iron salts dissolved in the soil-water will destroy crops the roots of which may happen to come in contact with such water. Land springs leaking out of cuttings by the roadside and throwing down a reddish-yellow ochre-like deposit are good examples of water impregnated with iron, which becomes oxidised and precipitated in contact with the atmosphere. An iridescent oily-looking film on the surface of such water indicates that the oxidising process is going on. Water impregnated with iron yields a blue colouration if tested with a solution of ferro-cyanide of potassium, commonly called prussiate of potash, a substance procured cheaply as yellow crystals from the ordinary chemist, which for the purpose in question may be first dissolved in rain-water. Apart from any injurious substances which the stagnant water occupying undrained soils contains, there is a deadness and want of vivifying influence about it which is at least negatively detrimental. For one thing it lacks the dissolved oxygen which rain-water brings down from the atmosphere, this gas being appropriated by any of the imperfectly oxidised iron or organic compounds which may happen to be present in the soil. The fact that atmospheric oxygen unites with soluble iron compounds which are imperfectly oxidised accounts for the formation of iron pan in the soil, the initial stage of which is shown in the roadside ochre deposit above alluded to, a condition well known to be detrimental in the highest degree to crops on account of the mechanical obstruction thus presented to the downward passage of their roots. Under conditions of this kind oxygen which performs such useful functions in the soil has a positively detrimental effect of an indirect character, which, of course, would not be the case in a soil properly drained. As a matter of fact, much more water passes through a drained soil in the course of a year than through one which is undrained. A little consideration will make this statement clear. Where the soil is not drained, but where the water does not overflow the surface of the land, the water of the saturated undersoil, it virtually forms an underground lake or pond, according to the area involved. When rain falls it refuses to pass downwards in such a case, because the soil already holds as much as it can carry. The result is that the rain-water flows off the surface, removing both soil and fertilising matters, unless the area of the land is very flat or concave, in which case a lake or marsh is formed. It follows from this that the underground water remains almost stationary, undergoing little change from year's end to year's end. On the other hand, where the undersoil has been properly drained every shower of rain soaks downward to the subsoil, flowing off by the drains as soon as the surface of the underground water is brought up to a level with the pipes. It would appear from the ideas that some people hold about drains that the rain-water makes its way by some sort of attraction to the channels which have been dug out to receive the pipes, and then be refilled with soil. As a matter of fact,

however, these channels in no great length of time settle down, and become as solid as the surrounding earth. The real thing that happens in the case of a soil unsaturated with stagnant water is that the rain, as it falls upon the surface, sinks perpendicularly downwards until it reaches the so-called "water table," which is the average permanent level of the subsoil water, which, augmented by the additional supply, rises until an outflow is obtained by means of the drain-pipes. This principle is well illustrated by an empty cask turned up on one end, and which has had the bung removed. Water may be poured into it until the level of the bung-hole, which may be taken to represent the drainage outlet of the soil, is reached, when, of course, the water flows away, and unless the intake is greater than the outflow, one might go on indefinitely without filling the cask. Take the case of land; an exceptional rainfall may temporarily give more water than the drains can at the time remove, the result being that the water overflows the surface, producing a flood. If, however, the soil is efficiently drained, the soil is rarely saturated long enough to do any serious mischief.

(To be continued.)

## POTATO LEAF-CURL.

By L. RODWAY, Government Botanist.

THIS disease exists wherever the tuber is grown. It is easily controlled by spraying with Bordeaux, but if neglected may become sufficiently bad to injure the crop severely. The fungus shows principally in the spring, from which it is called early blight. The leaves turn yellowish, black patches of spores form on the surface, the whole haulm may become distorted and wither. The appearance of the disease is something like Irish blight, but of course it is much slower, and does not cause rot of the tubers in the same way. The injury to the foliage keeps the tubers from forming, or at least keeps them very small. We must remember that the haulm and foliage have only one way to respond to any diseased condition, whether due to insect or to fungus, and that is to yellow, curl, and wither: so that too much reliance must not be placed on general appearance. There is only one way to make sure that a plant is suffering from a specific fungus disease, and that is to find the characteristic spores of the fungus causing the disease. Early blight has a large black spore divided into sections as though it was built of a lot of minute bricks. It is a macrosporium, and from its common presence on potatoes is called *Macrosporium solani*. It is common also on tomatoes, causing the disease known as black spot of the plant. A similar macrosporium causes rotting of vegetable marrow. Leaf curl is very common in our potato fields, and will be much reduced by spraying with Bordeaux.

## THE ART OF BUDDING.

By J. OSBORNE, JUN., Horticultural Instructor.

**B**UDDING is the operation by which a bud, with a portion of bark, is taken from a tree or plant and inserted beneath the bark of another tree or stock, as in the case of young trees. The main principle of budding is the same as in grafting.

The union is effected by means of the organisable matter—the cambium—which is found between the alburnum and the inner bark; and the success of the operation depends on the abundance of that matter being such as to permit of the bark being lifted easily from the wood. When both the stock and the tree from which the bud is taken are in that condition—which in Tasmania is usually during the earlier part of December, and in ordinary seasons will continue till the end of March—the union is most readily effected.

There are periods when the flow of sap is checked, and the bark holds close to the wood. This is especially noticeable during a long spell of dry weather. At such times budding should not be attempted. Still, warm, moist weather is the most suitable. Dry weather, with a fiery sun, is likely to kill the buds, unless protection is provided. Irrigation, with the water at an even temperature, assists the union materially in a dry season. Rainy weather is injurious, for when water gets into the wound it decomposes the sap, and organisation cannot proceed so as to form a union.

There are several methods followed in performing the operation, but shield or T budding is the method generally followed, it having proved the most successful. When operating, the shoots containing the buds should be taken, and two-thirds of the leaf from each bud removed, in order to prevent a too-rapid transpiration. They are then placed, heels down, in a vessel containing fresh water. Shoots treated in this manner do not wilt or become too dry for use for a considerable time.

A cut, T shaped, is then made in the stock, just large enough to admit the bud. The bud is then removed from the shoot by inserting the knife half an inch above the bud, the cut being made so that the eye, or growing point, is in the centre of the shield, this being from a quarter to half an inch wide at the centre, sloping to a point at the lowest end, the shield being 1 inch in length.

The petiole, or leaf stalk, is then cut through, leaving a small portion of the leaf attached, and the bud inserted by taking the petiole between the thumb and finger and inserting the point at the top of the T, pushing gently till the whole of the shield is under the bark of the stock. The petiole is then righted till it is in the centre of the T. The binding is then put on, a soft twine being used if "raffa" is not to be had; do not tie tightly, as a free circulation is essential.

In removing the wood from the bud, care should be exercised, so that the "core" is not removed.

If this should be taken out with the wood, leaving a small hole at the base of the bud or growing point, it will not succeed, and another bud must be chosen.

The base of the bud is of a greenish colour, and pulpy in nature, and is the beginning of what is called the medullary sheath, the upper part of which the rye or growing point of the bud. If the wood comes out cleanly, the bud is ready for insertion.

The operation, to be successful, must be done quickly, for the organising tissue is very delicate, and soon becomes vitiated or spoilt if exposed to the air for a few moments. This will be seen if the operator will take the trouble to notice the effect of exposing the wound to the air for a short period; the cambium will become quite brown, and in a short time a thin layer of bark will be formed, and although this may protect living tissue that is formed under it, yet it can never unite with it.

In the course of a few weeks it will be seen whether the buds have taken. If the petiole or leaf stock on being touched drops off, it is almost certain that a union has been formed; on the other hand, if the petiole wither or shrivels up it is a sign that the bud has failed.

As soon as it is known that the buds have taken, the ties should be loosened, and seen to occasionally; and in about six weeks or two months after the budding they may be removed altogether.

When the buds begin to push, if necessary, the stock may be "headed" back to within half an inch of the top of the shield. It will then begin to grow rapidly, especially if the operation is performed early in the season; and in the course of a season a nice tree will be formed. On the other hand, if the bud does not move, but remains dormant till the winter season, the heading back of the stock may be left till that period. When the budding is done in December the bud is better if pushed right away, and no time is lost; but if done late in the summer, it is better to leave it till the early spring, when a good growth may be looked for.



AND drainage is one of the most important factors in successful farming, yet perhaps the most neglected.

## THE PIG INDUSTRY.

By R. J. TERRY, Poultry and Pig Expert.

I WANT to endeavour to keep in mind whilst writing this article that it is being written to help the farmer and pig-breeder. On the one hand it is not to be too scientific (it is not for experts), and on the other hand it must go further than simply give a few ingredients, or even tabulated balanced rations, without the reason for so doing. A few farmers may say, "We have fed pigs for years, and do not want advice as to how to make a pig fat." But does the art of pig-feeding consist of only making the pig fat? I say no, we have to consider much more and in this connection my desire is to get the farmers to go into the matter and consider what must be our present aim. We have to produce an article at least of as high a class as our competitors on the mainland, and try to surpass them. We also have to compete with them as regards cheap production of the raw material, so we must study a combination of foods, &c., using as a bulk what is cheapest on that particular farm, and then using our knowledge to combine certain other feeds with the bulk to make a perfect whole. Pig-feeders, especially those who produce baconers, must realise times have changed. At one period consumers were content to eat what would now be considered the cheap grades of bacon, but as a result of greater means, a higher standard of living, together with the advent of Federation (which allows the free import of pig product from other States), better quality is demanded from local producers, for which they—the public—are willing to pay enhanced prices, but ordinary and poor qualities have receded in price. There must be a general co-operative movement with the pig-breeder, feeder, and curer. The bacon-curer alone does not make or mar the quality. It is impossible to make high-class bacon from badly fed and reared pigs. The pig-feeder may have his idea as to what is bacon, and what suits his palate, which may even be the same as pleased his grandfather, but he must study the public taste. Has it been considered who it is who eventually decides on the standard of any products, consciously or unconsciously? The only answer that can be given to such a question is that the consumer is the arbiter of the pig-keeper's returns. He dominates the position by reason of the fact that when he asks in exchange for money certain qualities, unless they are forthcoming he can, by declining to purchase, compel his own views, or, further, by paying a less price for supplies which fail in maintaining the standard he has formulated he controls the situation. We may temporarily, by plausibility or deception, or withholding supplies, suspend this inexorable law, but ultimately the trump card is played by the consumer, more especially with semi-perishable products which are not actually necessities. Great though the influence of the retailer may be, he and the producer are alike dependent on pleasing and satisfying the final pur-

chaser. The sooner the truth is recognised by all concerned the better will it be. Useless indeed is it to struggle against such influence. One of the supreme difficulties which I have had, and still have, to face in connection with what might be termed the egg and bacon industries is to impress on producers and handlers of the products that it is not what they think—not what they regard—as satisfactory which fixes the standard of quality and of price, but what the consumer desires and is willing to pay for. I have made these rather full preliminary remarks to impress upon the reader my object for going somewhat fully into details as regards quality of fat or lean meat produced by certain feeds. There are certain feeds which, quite apart from the fattening qualities or the reverse, influence, more or less strongly, the quality of the product. I will deal in the first place with firmness of the meat intended for bacon purposes. I would urge on my readers that they should not confound soft pork with fat pork. They can disabuse their minds as to this mistaken idea, and remember that practically always the fat pig is the firm pig. They should also not infer that certain breeds of pigs always produce soft pork. So far as breeding influence on firmness is concerned, I believe I am right in stating that any of the pigs commonly found on the farms of Tasmania are as good as any other in this respect. Some breeds, such as Poland China, tend to produce short thick sides with an excess of fat, but these sides may be quite as firm as the most perfect side ever marketed. Experiments have shown that the fat of the pig consists practically of three fats, two of which are solid and the other fluid, at ordinary temperatures. The fluid fat is known as “olein,” and the two solid fats as “palmitin” and “stearine.” Researches have shown that the softness of much of the bacon is due to the presence of a predominating quantity of olein. It has been found that as the percentage of olein increased the others decreased, and the olein being fluid at ordinary temperatures, the greater the quantity present the softer the fat. This is only common sense. When the investigations commenced various ideas were held as to the cause of the softness; some thought it was entirely due to feed, others attributed it partly to the food and partly to the breed; while still others held it was due to the pigs being killed when too young, or in other words, forcing them by certain foods. The net results of experiments go to prove that the softness so much complained of is due principally to the extensive use of starchy foods, which I will deal with at a later stage. Other causes are feeding pigs too rapidly from birth to the required weight, unless great care is taken in feeding a certain amount of food, which has a tendency to firm the meat. This rushing process, while it does not always give bad results, frequently produces soft sides. On the other hand, selling baconers to the curers when under weight or before they are matured or ripe, also produces a large quantity of soft side. Generally speaking, if the feeding is fair the degree of immaturity may be taken as the measure of the softness; that is, the further from maturity the softer the flesh is likely to be. Pigs fed on any ration not conducive to health or fed in any way not favourable to thriftiness are almost certain to yield

a large percentage of soft side, while properly-fed pigs will yield a high percentage of sound meat. Briefly, 99 per cent., properly fed and reared, with a judicious amount of exercise, will produce firm meat. So it lays with the feeder and the rearer, rather than with the breeder, to improve the quality of our pigs in this direction. Properly-cared-for pigs mean pigs fed under conditions conducive to health and thrift. The most important factor in the production of firm bacon is undoubtedly the food, and fortunately in this State the easiest-grown cereals make the best of pork. Barley is undoubtedly unsurpassed as the feed for the production of firm bacon, and it should be remembered that a malting quality is not required; colour has practically no effect. Therefore, along the North-West Coast heavy crops of barley could be grown for pig-feeding, although, owing to the nature of the soil and climate a malting sample might not be produced. Oats also are an excellent feed; that is, of course, in a thoroughly crushed or ground state. Peas produce good results when combined with other grains, or for firming the meat; or rather, strictly speaking, hardening the meat when the pigs have previously been fed on foods which are inclined to produce soft flesh. Skimmed or separated milk is one of the best guarantees of firm pork. Whey has also a beneficial effect in this direction, but these will be dealt with in detail later on. Since taking up the duties of Pig and Bacon Expert I have often thought how much better it would be for the industry if the pig was less keen in his appetite, and to a certain extent fastidious in what he consumed. Unfortunately, there is scarcely anything that he will not eat, or at least attempt to eat; therefore, the farmer in many cases has got into the habit of letting the pig forage for himself, or giving him for his sustenance what would be rejected by the other stock on the farm. I agree that the pig, to a certain extent, should be looked upon as a scavenger on the farm; that is, he consumes waste products. But if these waste products are not intelligently combined with other foods very little profit may be obtained; and it is in this direction that I would like to point out to farmers the various values of certain products which are fed to the swine. Simply filling the stomach of the pig does not prove that it has had a sufficient amount of nutriment to make up for loss of energy and to keep up temperature. If we take mixed grain as a standard, then potatoes have a fourth of its feeding value; that is, 4 lb. of potatoes (cooked) would give about the same result as 1 lb. of grain. And here I must make a little digression. When lecturing I have always laid great stress of the greater value of cooked potatoes as against raw, but there are many districts where this paper will probably reach that I have not lectured in. The reason for the increased value of cooked potatoes as against raw is this—the chief feeding value of potatoes is the starch they contain. The starch is enclosed in minute cells; these cells are somewhat difficult to digest. The great agent in assisting in their assimilation is the saliva in the mouth, therefore all starchy food should be thoroughly masticated; but does a hungry pig give much attention to the mastication of a raw potato? On the other hand, when the potato is boiled the starch cells

are burst, hence the saliva and digestive juices are more readily brought into contact with the starch, which ensures better digestion. As I have so often stated it is not from what an animal consumes, but what it digests, that the farmer gets his return from. The feeding value of mangolds is approximately one-eighth that of mixed grain; in other words, 8 lb. of mangolds would have a feeding value of 1 lb. of mixed grain or 2 lb. of cooked potatoes, but this is only approximate, as so much depends on the quality of the mangolds or similar roots, and the time that they have been out of the ground. It should be remembered that it is only the dry matter contained in the roots that is of feeding value. But roots, like many other feeds when used in combination, have a value which is outside their analytical value. It is for this reason I claim that the farmer has to a certain extent used his experience in feeding certain individual animals. There is not the least doubt that outside the feeding value of roots they have an affect on the appetite, digestion, and general health that is beneficial, particularly during winter or a spell of drought, when the swine could not obtain other succulent foods. If analyses only are taken into consideration it is difficult to explain how in one instance which came under my personal observation in the Old Country 500 lb. of mangolds proved equal to 100 lb. of mixed meal, but the pigs receiving the mangolds showed the effect of their feed in more growth and thrift than the others. They had a tendency to grow and develop rather than to become fat. As I previously mentioned, there is some difference in the value of the class of mangolds or root feed, but not as much as some would suppose. I have heard good accounts of sugar beet when chatting with mainlanders at our various agricultural shows, and when in Victoria recently, of the cheap foods that would be obtained when the beet sugar factory was in operation by utilising the beet pulp as a food for pigs. As would be expected beet pulp would have more feeding value than a given weight of the raw root; that is, if we take into consideration the cost. But it is so small that it need not be seriously considered. Before leaving this question of root-feeding generally, I would like to disabuse the minds of farmers—fortunately, they are in the great minority—of the idea that a pig can be grown with a profit solely on roots. I am constrained to make this pointed allusion chiefly with the view to warn the new man taking up farming or orcharding pursuits. I have heard statements made by beginners that they could use the waste, or windfall, apples to fatten pigs, and after the remark has been made on several occasions some of those who tell the tale seem to really believe it. I had it deliberately told to me twice last season. But if you go into the matter and make a few inquiries you will find that the one or two pigs which were supposed to be solely fed on apples or roots had the run of a paddock and the house scraps. I am going to say that it is practically an impossibility for a pig to eat a sufficient quantity of apples or mangolds to obtain any weight or condition which would class it as a fat. A really fat pig may be held for a considerable time without apparent loss of condition on roots or apples alone, but they will not do more than this.



## CATTLE DISEASES.

(Resume of Lectures given on North-West Coast on Diseases affecting Dairy Herds.)

By Dr. WILLMOT, M.R.C.V.S., late Government Veterinary Surgeon.

### CONTAGIOUS ABORTION AND STERILITY IN COWS.

**T**HE abovenamed disease must not be confounded with occasional cases of abortion, which may occur in perfectly healthy herds from various causes, such as mechanical injuries, which may cause detachment of the uterine members and death of the fœtus (unborn calf); by the ingestion of ergoted grasses, which act as an ecboic (drugs causing contraction of the womb); by the ingestion of frosted grasses, turnips, &c., or very cold water; by sudden climatic changes, such as snow or hail storms; by various forms of indigestion, causing pressure on the womb; from constipation; from contact with carrion; excitement and upset of the nervous system; and many other causes. Neither must occasional sterility, which may occur now and again in any herd from various causes, such as constriction or occlusion of the cervical canal, caused by inflammatory action after a previous birth, by tumours interfering with the act of copulation, by spasm of the mouth of the womb, by affections of the ovaries or fallopian tubes, by ill-timed intercourse with the bull, and numerous other causes, be confounded with the abovenamed contagious disease.

When one cow aborts (slips her calf before it is mature) in a previously sound herd, and shortly after another cow does so, and then another, the dairy-farmer may reasonably suspect that he is troubled with the contagious form of the disease, and when in addition to these known cases of abortion he finds that his cows, instead of proving to be in calf, are constantly "coming back to the bull," it is an exceedingly strong confirmation of his suspicions, and he should be on the safe side and act at once as if it was a proven fact, bearing in mind that if the foundation for his belief turned out to be unsound, then no harm, with the exception of the expenditure of a few pence, the price of the solids, and some little trouble would have happened, the treatment recommended, even if the animals are not affected, being harmless.

*Cause of Disease.*—The disease is generally understood to be caused by the introduction into the vagina (the passage from the external generative organs to the womb) of a special micro-organism called Bang's bacillus, which causes a specific muco-purulent catarrh of the lining membrane of that organ. This catarrh (discharge of fluid from an inflamed membrane) may extend to the membrane lining the womb. Its deleterious influence may be threefold; first, by a specific action on the fœtal membranes in the womb; second, by a destructive action on the sperm of the bull; and third, by interfering with the fertility of the ovum of the cow; thus causing either abortion or sterility, shown either

by the cow slipping her calf before maturity, or coming back to the bull as sterile.

*Bacteriology.* I will not go into the bacteriology of the disease, as technical information about it will be of little value to anyone save an expert; suffice it to say that the causative micro-organism is called Bang's bacillus, after the name of its discoverer, and that the disease has been investigated in England, on the Continent, in Denmark, and nearly all countries where the dairy interest is carried on, and the evidence to prove the cause of it is incontestible.

*Diagnosis (distinguishing Disease by Symptoms).* The only absolutely sure means of diagnosis is by microscopic and bacteriological examination of the muco-purulent vaginal discharge; but such an examination can only be made by persons who have had a special expert training. As this method would be impossible for the dairy-farmer, he will have to fall back on careful and constant inspection of his herd, and he must judge from the occurrences that I have previously mentioned. In the case of sterility, however, he may form some idea from the appearance of the vaginal discharge at the time of œstrum (bulling); in health this discharge is a clear, colourless, viscid discharge; but in cases of disease, instead of its being colourless, it is frequently more or less tinged with a reddy-brownish colour, and more or less opaque. But the golden rule is, in any case of doubt, as I have said before, go in for treatment.

*Means of Infection.*—There are two ways of infection. The first is by direct infection; the second by indirect infection. It is a debatable point, if the local affection can be caused by constitutional infection of the animal, so I will not dwell on that. Direct infection is caused by contamination of the bull by an infected cow during the act of copulation, and by recontamination of other cows from the bull which has so contracted the disease; it is also caused by cows jumping on one another when in œstrum. Indirect infection is caused without two animals being in immediate contact: first, the discharges from the vagina of an affected cow may be left on the posts of the milking-shed, rubbing-posts, fences, bedding, or floors. Other cows may rub against these posts or places, and by this means the micro-organisms contained in the vaginal discharges may find access to the genital organs. Second, the discharges may dry up and pulverise into imperceptible dust, which, mingling with the stable and atmospheric dust, may so gain access to the parts implicated in the disease. (I mention this to show the necessity of disinfecting the sheds.)

*Prophylaxis (guarding against the introduction of the Disease).*—As this is a most highly contagious disease, the dairyman must use the greatest circumspection when purchasing new cows. He must assure himself that the herd from which fresh cows are selected is a healthy one, and free from this disease. The same applies in purchasing a bull. If a dairyman's own herd is clean he must be careful not to allow his bull to serve outside cows, which may be affected, and that he does not

hire or loan a bull for use with his own herd that may have been serving outside affected cows. In purchasing a new cow or bull, if the history of the stock from which they are bought is in any way doubtful, and his own herd is clean, the new purchases should be put by themselves, and disinfected before mixing with his own herd. If the purchaser's own stock is infected, new clean stock may contract the disease either from the bull or from indirect infection in the stables, so that they should be kept separate. Finally, on an infected farm the stock should be treated and the premises disinfected before fresh cattle are introduced.

*Immunity (State of non-liability to the effects of infection).*—Cows, after three or four consecutive abortions, frequently acquire an individual power of resistance to the effects of the disease, and are able to carry their calves the full time, although they still retain sufficient evidence of the disease to affect a bull during copulation (see therapeutics).

*Therapeutics (Treatment by the administration of internal medicines).*—The administration of medicines is proved to be useless; the disease being a local one, constitutional treatment is of no avail. Hypodermic injections of every kind of antiseptic have been tried, without benefit. Certain "nostrums" (patent medicines), however, have obtained great reputations, not because they are of any use, but because, as stated in above paragraph, the animals after a few abortions have acquired natural immunity, and are able to carry their calves. The nostrums are given after three or four abortions have occurred, with the result that the cow carries her calf; this, which would have happened in any case, is put down to the effect of the medicine, when, in fact, it is due to the acquired immunity. It is therefore waste of money to try these remedies.

*Treatment.*—The treatment of the disease is purely local. The following equipment is necessary:—

- A piece of  $\frac{1}{2}$  or  $\frac{3}{4}$ -inch rubber tubing, 3 or 4 feet long;
- A pint (or larger) funnel, of crockery or gutta-percha;
- A small rubber enema;
- A disinfectant (see next paragraph).

The operation on the cow is performed, as follows:—Bail up the cow and leg-ropes her. First attach the tube to the funnel; an assistant then holds up the cow's tail with one hand, and with the other holds the funnel about 18 inches or 2 feet above the root of the cow's tail; the operator, with one hand, inserts the free end of the tube into the vagina as far as it will go, with the other hand he pours the disinfectant into the funnel, the fluid gradually floods the vagina by gravitation, and so disinfects it; the irrigation should be gradual; one bottle of the disinfectant should be used for each operation, and the operation should be performed twice a day for three or four days consecutively.

In cases where the cow has aborted, it will be necessary to irrigate the womb as well as the vagina. This is done by passing the hand

with the end of the tube held between the forefinger and thumb into the vagina, gradually inserting it into the mouth of the womb, and passing it in as far as it will go without force. *Note:* That in irrigating the womb, the disinfectant must be diluted to a fourth of its strength; a separate bottle of diluted disinfectant should be kept for this purpose.

To disinfect the bull, he must be firmly secured; the sheath of the penis must be grasped at the end, and slightly pulled out, making a sort of pouch of it; the nozzle of the enema must be inserted into this pouch, and the free end into the bottle, and the fluid injected into the sheath and allowed to remain for a few minutes, and then let drain away. This insures disinfecting the penis and sheath. The operation must be performed twice a day for three days; he should then be clean and fit for service. After service of a doubtful cow, this operation should always be performed once or twice.

*The Disinfectant.*—The most suitable disinfectant and the most easily made without weighing or measuring is Burroughs, Wellcome, and Co.'s "soloid" of perchloride of mercury (corrosive sublimate), grains 8.

It is made by taking a thoroughly clean quart-bottle, drop one of the soloids (which can be obtained from any chemist in small bottles of 25 or 100) into the bottle, fill the bottle with boiling water, shake it about till the soloid is dissolved, allow it to cool, and it is ready for use. *Note well:* That it is exceedingly poisonous, and must be taken care of to prevent accident. The cost of these soloids is approximately a farthing each, so that, roughly, it will cost three halfpence to disinfect each animal.

*Disinfection of Premises.*—To prevent indirect infection of the animals, it is necessary that the sheds or stables where the animals are housed be kept scrupulously clean: if there is any sign of disease, they should be frequently disinfected. The best means of doing this is by whitewashing all the woodwork with a 5 or 6 per cent. solution of chloride of lime. This is a most powerful disinfectant, and has the advantage of giving ocular evidence that the operation of disinfection has been really carried out. The floors should be thoroughly cleared out, and also disinfected. A very good disinfectant for this purpose is a small handful of crystals of sulphate of iron dissolved in a bucket of water, and thoroughly sprinkled about; or quicklime, if procurable, such as carbolic acid, permanganate of potash, phenyle, &c., will answer the purpose, but they have the disadvantage of tainting or colouring the milk.

It will be gathered from the above that the two diseases, contagious abortion and contagious sterility, are really one, and that the cow and bull are both affected; and that for a herd to be kept healthy, the first sign of the disease must be the warning note to stamp it out by disinfection.

## DYSENTERY IN YOUNG CALVES.

*(White Scour.)*

Dysentery in newly-born calves is an infective disease caused by micro-organisms. What particular bacillus causes the disease is still an open question, but the general opinion is that it is caused by special bacteria belonging to the colon group. Be this as it may, it is undoubtedly caused by a septic (putrefactive) bacillus. These septic bacteria are found in the dung, urine, and vaginal secretions of the cows, and find entrance to the blood of the calf by direct contact with the surfaces of the navel-cord when passing through the vagina of the cow; and also by indirect infection from the atmosphere of the cow-sheds, which, unless disinfected, are always contaminated with these minute micro-organisms.

Some pathologists hold the opinion that in cases where contagious abortion exists, the micro-organism of that disease plays an important part in the infection of white scour, not by directly causing the disease, but its invasion into the system of the calf lowers its (the calf's) vitality, and in doing so deprives the blood of its natural power of resistance to the invasion of the septic bacteria, which are the immediate cause of the disease.

*Symptoms.*—A day or two after the calf is born, it refuses to take nourishment, has a high temperature, arches its back, mopes about, and suffers from pain and diarrhœa, which gradually gets worse and lighter in colour, till the animal dies of exhaustion.

*Treatment.*—The treatment of this disease is both preventative and curative. As prevention is better than cure, I will mention this first.

*Prevention.*—When a number of cows in a herd are expected to calve, they should be daily inspected, and any cows that show signs of soon calving (springing) should be got up handy to the homestead, so that they will calve under supervision, and on no account, if the disease is in the neighbourhood, should they be allowed to calve in the bush.

As soon as the calf is born the treatment should commence, which is as follows:—A piece of fine twine, a foot or so long, should be soaked in the disinfectant, the same as used for the cows (made from the soloids). At 3 or 4 inches from the calf the navel-cord should be at once tied as tight as possible with one twist of the twine round it; it can be then cut through with a pair of scissors half an inch from the twine on the side farthest from the calf; the ends of the twine can then be cut close to the knot. When this is done the calf should be carried to a clean, dry place; the part of the cord protruding from the calf, especially the end where it is cut and round the navel, must then be gently sponged with the "soloid" disinfectant, and made quite clean. As soon as it dries it must be well painted with a thick coat of iodised collodion; this in a few minutes dries up, leaving a coat-like varnish on the raw surface of the cord and opening to the body of the calf, which will prevent the entrance of the micro-organisms. (The iodine collodion is simply col-

iodion with 5 per cent. of iodine crystals dissolved in it, and can be obtained from any chemist.)

The after-birth (cleansings) of the cow being removed and burnt, and her hinder parts disinfected, she should be put in a clean shed or paddock; the calf may then be safely made over to her.

*Medical Treatment.*—There is no specific for calves attacked with this disease, but very good results have been obtained by the following line of treatment:—When the first symptoms show themselves, it is a good plan to administer a small dose of castor oil (an ounce and a half to two ounces) with 20 grains of powdered opium in it, and every five or six hours after give 20 grains salicylic acid with 10 to 15 grains of opium in a little camomile tea. If there is very much diarrhœa, add 20 grains of tannin to the mixture.

Another very good prescription is 20 grains each of salicylic acid, opium, and carbonate of magnesia, given in a little oatmeal gruel. But the dairyman will be wise who relies on the preventative treatment rather than on the curative.

#### SEPTICÆMIA OF CALVES.

Under the above heading we may class several forms of septic (blood-poisoning) diseases of calves, generally of from six to eight weeks old, or may be older. It attacks them in the form of pleuro-pneumonia (inflammation of the lungs and pleura, broncho-pneumonia, gastro-enteritis (inflammation of the stomach and intestines), and general septicæmia (blood-poisoning).

These diseases are microbic, being caused by septic micro-organisms, are infectious, and frequently fatal.

The septic micro-organisms abound in ill-kept stables, in the excretions of animals, in putrefying or decomposing animal matter, and in the dusty atmosphere where animals are collected together. They obtain access to the body of the calf—first, by inhalation into the organs of respiration; second, through the skin (but this only occurs when there is some abrasion); very frequently the micro-organisms enter through the unhealed part of the umbilical-cord through the navel; third, through the mucous membrane when that structure is either lacerated or inflamed.

*Symptoms (Signs of the Disease).*—The symptoms of the disease are high fever and great debility, the calf lying down most of its time, and, when rising, staggering in its movements. There may be cough and difficulty in breathing, but as the disease very frequently attacks organs of the body other than the lungs, the symptoms naturally will vary accordingly.

*Prophylaxis (Prevention).*—If we wish to prevent the spread of the disease, we must consider the above three ways by which it is propagated. In the first place, as the disease is spread by infection, it will be necessary to separate the unhealthy from the sound calves; secondly, in case the disease should gain entrance by wounds in the skin, when the disease is prevalent, a daily inspection of the calves, and the sponging of any sore places with a mild antiseptic, such as 1 per cent. solution of chloride

of lime, the navel-string in all the calves should be thoroughly cleansed and disinfected in the way previously described, as this is one of the frequent ways by which the septic micro-organisms obtain access to the internal organs, and is the cause of the death of a large number of very young calves. The third means of infection is by the mucous membrane of the alimentary track. It will be noticed that the disease frequently attacks the fattest and best-doing calves, and the reason is that when calves fed on skim-milk begin to get fat, they often get diarrhoea, more or less, caused by the irritation of the mucous membrane of the stomach and intestines. This inflammatory state allows the micro-organism of the disease to locate itself and penetrate the coats of the membrane, and so set up the primary septicæmia which is frequently found in the earlier stages of the disease. The bacillus of septic pleuropneumonia is a widely-spread micro-organism in many parts of this island, and the disease is likely to spread itself still wider unless precautions are taken to prevent it so doing. I am of opinion that the insanitary state of the tanks which receive the skim milk at the creameries is responsible for a good many of the cases. The skim-milk gets contaminated through want of attention to cleanliness, probably in the first place by contamination from the lochia or vaginal discharges from the cows that have recently calved; these discharges may easily affect the milk in the buckets. The skim-milk is mixed in the tank, the tanks do not appear to be regularly disinfected, the milk is not sterilised, some of it is left in the tank, and so a medium for the growth and cultivation of the bacilli is established, and the pathogenic micro-organism is distributed wholesale in the neighbourhood; the calves drink it out of unclean vessels or troughs, and so the disease spreads; the same may be said of the milk from many private separators.

The means I recommend farmers to adopt are as follow:—First and foremost, all calves dying should be burnt; the after-births or cleansings of all cows calving should be sought for and burnt, as this is a fruitful source of the contamination of the farm; all troughs or vessels that the calves feed from should be rinsed out three or four times a week with a 1 per cent. solution of chloride of lime. The cost would not be great; chloride of lime at, say, 28s. per cwt., would give about 50 gallons of a 1 per cent. solution for 1s. It would be safer for persons using their own separator to sterilise the skim-milk by heat (raising it to a temperature of, say, 165° F. for 20 minutes) before feeding it to the calves. The after parts of cows recently calving should be washed with the above solution before milking, and the health of the bulls attended to. Any calf sick should be separated from the others; the stall or place where the remainder are should be disinfected with chloride of lime, and quick-lime should be well sprinkled on the floors.

*Treatment.*—I do not think medical treatment is likely to be of much use, but one or two drachms of salicylic acid might be tried two or three times a day in camomile or linseed tea, or small doses of sulphur given with the milk might be beneficial. Sulphate of iron, or arsenic in the

form of liquor arsenicals, half to one drachm three times a day, might be beneficial.

In conclusion, I may say that I think it would be a good plan if some of the remedies, such as the soloids of bichloride of mercury, chloride of lime, &c., were kept in stock at the creameries, for easy disposal and distribution to the farmers; and last of all, don't have all your calves in one paddock, keep only two or three together, so that if disease does break out, it only attacks those few.

### THIRD TASMANIAN EGG-LAYING COMPETITION.

THE following is the progress report for the sixth month of the third egg-laying competition conducted at the Springvale Tea Gardens, New Town. —

	Month of Nov.	Total.
1. White Leghorns, F. Hart, New Town ... ..	135	744
2. White Leghorns, A. G. Genders, Launceston ... ..	109	618
3. Silver Wyandottes, H. R. Taylor, Launceston ... ..	121	603
4. White Leghorns, L. S. Hyland, Mt. Hicks ... ..	127	652
5. White Wyandottes, A. G. Genders, Launceston ... ..	132	668
6. White Leghorns, East Launceston Poultry Yards, Launceston ... ..	123	714
7. L.C. Brown Leghorns, East Launceston Poultry Yards, Launceston ... ..	116	675
8. White Leghorns, Williams Bros., Fingal ... ..	133	637
9. White Leghorns, Briggs & Son, Longford ... ..	124	684
10. Silver Wyandottes, W. T. Stephens, Beulah ... ..	112	696
11. White Wyandottes, Rust Bros., Claremont ... ..	110	588
12. White Leghorns, R. J. Sheriff, Hagley ... ..	97	608
13. Black Orpingtons, G. Gilham, Launceston ... ..	110	498
14. White Leghorns, J. J. Harvey, Riana ... ..	52	447
15. White Leghorns, Mrs. B. Whittle, Launceston ... ..	117	615
16. R.C. Brown Leghorns, Briggs & Son, Longford ... ..	117	583
17. White Leghorns, A. Dickenson, South Bridgewater ... ..	108	612
18. White Leghorns, Reid & Stride, Liverpool-st., Hobart ... ..	110	660
19. White Leghorns, S. Ellis, Botany, N.S.W. ... ..	99	571
20. R.C. Black Orpingtons, W. T. Stephens, Beulah ... ..	115	470
21. Buff Orpingtons, A. G. Genders, Launceston ... ..	106	608
22. White Leghorns, O. H. Olson, Karoola ... ..	120	705
23. Black China Langshans, S. Ellis, Botany, N.S.W. ... ..	101	467
24. White Orpingtons, E. E. Roberts, Franklin ... ..	83	538
25. White Leghorns, Mr. B. Whittle, Launceston ... ..	127	730
26. White Leghorns, L. J. Dowling, Devonport ... ..	112	614
27. Black Orpingtons, F. A. W. Gisborne, Risdon-road ... ..	104	617
28. White Leghorns, J. Crisp, Launceston ... ..	122	699
29. White Leghorns, F. A. W. Gisborne, Risdon-road ... ..	127	699
30. S.C. Brown Leghorns, W. H. Hale, Strahan ... ..	126	707
31. White Leghorns, Mrs. Luke Williams, Moonah ... ..	124	696
32. Black Orpingtons, A. Batton, Launceston ... ..	121	737
33. White Leghorns, A. Terry, Sea View Hotel, Burnie ... ..	127	746



## DESTRUCTION OF FRUIT AND VEGETABLE PESTS.

By ALBERT H. BENSON, M.R.A.C., Director of Agriculture.

(Issued as a Bulletin by the Queensland Government.)

*The Codlin Moth—continued from page 228.*

AS stated in a previous issue, there is no general hatching out of moths at any one time, but rather a prolonged hatching out that extends over some weeks. This being so, no one treatment is effectual. I have stated that when the young caterpillar hatches out of the egg it proceeds to the flower and thence eats its way into the young fruit; this is only the case with the earlier crop that hatches out when the tree is in blossom, as later crops of moths lay their eggs in any convenient place, and they enter the fruit either at the eye or flower end or at any other point. The fact that the young caterpillar has to eat its way into the fruit shows us how to destroy it before it has done any serious damage, as it is found that if the tree is thoroughly sprayed with an arsenical poison, a large number of the young insects eat the poison and are destroyed thereby. The arsenical portion that has given the best results is arsenate of lead, used at a strength of 3 to 4 lb. to 100 gallons of water, and sprayed on the trees in the form of a powerful direct spray delivered with force. The first spraying is given when the petals of the flowers begin to fall, and the spray is applied with sufficient force to drive it right into the eye of every flower. Do not delay to spray until the flowers have fallen, as it is then too late; the larvæ or young caterpillars are then well inside the fruit and out of the reach of the poison. Subsequent sprayings at intervals of 14 to 21 days from the first spraying should be given, in order to destroy those insects that hatch out from time to time, as previously described; and if the work is carried out in a thorough manner and at the right time, at least 90 per cent. of sound fruit should be secured. A certain proportion of the larvæ will be certain to escape the effects of the poison, and will develop in the fruit. These will require special watching, as, if allowed to escape, they will soon turn to the pupæ state, from which they will hatch out into the fully developed or moth state, and lay another crop of eggs on the fruit—the second generation in the one season. In order to deal with the larvæ that have escaped the poison several steps are necessary. The first is to gather and destroy every grub-infested fruit that can be seen. The next is to place a bandage round the trunk of the tree in such a manner that it provides a good shelter for the larvæ when it leaves the fruit. The effectiveness of the bandage depends on its being the only available shelter, as, if there are any natural shelters available, such as holes in the tree, cracks, crevices, loose bark, &c., the larvæ will select them in preference to the bandage; hence it will be seen how necessary it is for there to be no shelter for the larvæ other than that which is provided by the bandage.

In the Stanthorpe district the bandages must be in position by the first of November each year, and must be examined once in every seven days, and all larvæ or pupæ found therein destroyed. Strong sacking makes a good bandage, and I find that the best way to examine the bandages is to have a double set. The bandage containing the larvæ or pupæ is removed from the tree and placed in a kerosene tin, the tree is examined to see if any insects are left sticking to the bark, and the ground is also examined to see that no insects have fallen from the bandage whilst removing same. A clean, dry bandage is then put on in the place of that removed, and when the tin is full of used bandages it has either water added to it and is placed on a fire or the bandages are emptied out into a vessel of boiling water. There is no fear of missing any larvæ this way, and the bandages, when dried, can be used over and over again. Should there be any shelters in the tree other than the bandage they should be carefully examined when taking off the bandage, and all grubs found therein should be destroyed.

If these simple remedies are carried out we can keep the codlin moth in check in Queensland. The result of making the destruction of this insect compulsory in the Stanthorpe district has had decidedly beneficial results, so that it is hoped that the damage caused by this pest will ere long be reduced to a minimum, if not done away with altogether. Should a hailstorm visit the orchard it is advisable to spray the trees as soon after as possible, as the hail marks on the fruit are made use of by the moth for laying its eggs in. Many apples and pears were infested in this manner during the past season.

*Fruit Flies.*—Although several species of flies attack fruits and vegetables in different parts of the State, one—viz., that known as the Queensland fruit fly—occupies a very undesirable position, owing to its wide distribution, and also to the large number of fruits that it attacks. This fly is always in evidence to a greater or lesser extent, and it is undoubtedly our most serious fruit pest, and the one most difficult to deal with. Individual action is undoubtedly beneficial in isolated cases; but, before we can expect any permanent results, combined and systematic action will be necessary, as it is impossible to fight this pest as long as it is allowed to breed practically unchecked throughout the State, as, with the exception of the Stanthorpe fruit district in the south, and banana gardens of our north-eastern coast, no serious attempt has been made to keep it in check, despite the fact that many individual growers are doing their best to protect their own orchards. The Queensland fruit fly, though present in one part or other of the State throughout the year, is less numerous in winter than in the warmer weather, and in dry seasons than during moist, humid weather. Heat and moisture are conducive to its rapid development, whereas cold and dry weather retard it. In the Stanthorpe district it is never seen during the winter, and is rarely present in any great quantities till well on in summer; it gradually dies out in autumn as the weather gets colder. In the citrus-growing districts of southern coastal Queensland the fly is usually present in the

fruit that ripens in early autumn, but decreases rapidly as soon as the weather gets cooler and drier, and does not reappear until the following spring. A few flies can be found during the winter, but the damage caused by them is only small. In spring, however, they again increase in numbers, the rate of increase depending on the season; given a hot, dry spring there will be few flies, but if there is a lot of rainy and humid weather they increase rapidly, and are present in quantity throughout the summer. In the more tropical parts of the State the same conditions prevail. Thus, with a cool, dry winter or spring there are few flies, but they increase rapidly when more humid conditions occur. One of the chief reasons for the fly being present more or less the whole year round in the coastal districts is that there is a continuous supply of fruit, one variety being barely finished before another takes its place, thus providing a continuous food supply for the fly that enables a continuous succession of crops to be raised; and were it not that the insects are kept in check by dry and cool weather they would cause much greater damage than they do.

As already stated, the fruit fly attacks a large number of different fruits, some much more severely than others. Of those that are most liable to its attacks, the following may be mentioned:—Apple, apricot, cherry, guava, Japanese plums, nectarine, peach, pear, plum ("European"), Brazilian cherry, mango, loquat, mandarin, orange, pomelo, kumquat, quince, vi apple, sour mangosteen, kai apple, and averrhoa. The following, though liable to attack, are not as a rule badly infested:—Chickasaw plum, citron, lemon, lime, grape, passion fruit, persimmon, banana (the banana is seldom attacked south of the Tropic of Capricorn, but is attacked when grown further north), granadilla, and jujube. The following fruits are either not attacked or so slightly that little loss is caused by the fly:—Alligator pear, custard apple, monstera, papaw, pineapple, rosella, strawberry, Cape gooseberry, and fig. In addition to cultivated fruits the fly also attacks many native varieties, but with few exceptions the native fruits do not spread the pest to any extent, as, owing to the thinness of their pulp, the larvæ of the fly are unable to escape the attack of parasites and are destroyed in large numbers. Native figs are frequently blamed for spreading the fly, but as far as my personal observation goes I have never seen a fruit-fly larvæ in any native species of fig. There is one native fruit that does breed the fly in quantity, and that is the cockatoo apple, a species of caper that grows on sandy country near the coast. It is a useless tree as far as I know, and if proclaimed a noxious weed would soon be cleared out. Many growers are inclined to blame our native fruits for the prevalence of the fly; but, from my experience, there are more flies bred out in one neglected orchard of peaches, Japanese plums, or guavas, than in many acres of scrub, as few flies are destroyed by parasites in any kind of cultivated fruit, whilst the percentage of parasitised larvæ in native fruits has been shown by Tryon to be not less than 70 to 80 per cent.

The life history of the Queensland fruit fly is as follows:—The mature female insect lays her eggs in the ripening fruit, as, being provided with a sharp ovipositor, she is able to pierce the skin of the fruit and deposit her eggs well into the flesh. Under favourable conditions—viz., the proper degree of ripeness of the fruit—the eggs hatch out quickly and turn to footless maggots, which at once start to eat their way to the centre in the case of stone fruits, or to tunnel through and through the flesh in the case of apples, pears, and similar fruits. When the larvæ or maggots have become full-grown they turn into a small brown chrysalis, which generally buries itself in the soil under the tree, and from which a fully developed fly emerges. The time required by the fly to complete its changes does not exceed three weeks (Tryon). In some instances, especially where the fruit is pierced when in very immature condition, the eggs do not hatch out at all, as is frequently the case with persimmons; but in others the hatching out is merely delayed till such time as the flesh of the fruit is sufficiently matured to support the maggot. As the insect goes through all its changes in three weeks it will be seen that its increase under favourable conditions is extremely rapid; hence the only chance of checking such increase is to destroy the first crop of the season instead of allowing it to breed unchecked, and to follow up the destruction of the first crop by that of subsequent crops right through the season. So far as is yet known there is only one way of destroying this pest, and that is to kill it whilst it is in the maggot, grub, or larval condition in the fruit itself. All infested fruit should be gathered and destroyed whenever and wherever found, and if this is carried out systematically it will result in decreasing the numbers of the pest very materially. Attempts to destroy this pest by poisoning the mature insects (flies) have not been a success, though lately it has been found that the male flies are attracted by the oil of citronella and by another substance which I have seen tried, but do not know the name of, as it is kept very secret. I am anxious to have these substances that are known to attract the male fly thoroughly tested, as it is possible that by this means we shall be in a position to fight this, our most serious fruit pest, more successfully than we have done in the past. Meanwhile, until these suggested remedies are thoroughly tested, we have to depend mainly on the destruction of infested fruits, and this can be backed up by rooting out the thousands of useless peaches, Japanese plums, guavas, and cockatoo apples that are of no value to their owners, but are year after year the breeding-grounds of millions of fruit flies.

*The Yellow Peach Moth.*—This insect has such a wide range of foods that it is exceedingly difficult to deal with. It attacks plants so dissimilar as maize, cotton, and dahlias, and fruits such as peaches, oranges, and custard apples. The mature insect is a yellow moth covered with small black spots. With the wings extended it is about  $1\frac{1}{2}$  inch across, and, though very common in all the coastal districts, it frequently is not noticed on account of its shy habits. The moths lay their eggs on the

fruit or leaves near the fruit, frequently where two fruits touch; in fact, where peaches are grown in clusters they are always badly infested. The eggs hatch out into a spotted caterpillar, which is over an inch in length when full-grown. It eats its way into the fruit, in a somewhat similar manner to the Codlin Moth, and destroys it. It is very destructive to peaches when the fruits are clustered thickly, and sometimes does a lot of damage to oranges early in the season. The caterpillar eats its way into the orange—frequently through the navel of the seedless orange or where two fruits touch—and causes it to colour up prematurely and fall. The larva seldom comes to maturity in the orange as it does in the case of the peach or maize, and one larva frequently eats its way into two or more fruit. The best remedy for this pest in the case of peaches is to thin them out so that they do not touch each other, and then to spray with arsenate of lead. This spray is also the best to use in the case of the orange, and it can be used either alone or in conjunction with Bordeaux mixture. The growing of maize, sorghum, cotton, or other host plants of the moth in or near the orchard should also be prevented as far as possible.

*Tomato Caterpillars.*—The larvæ of two or three species of moths do serious damage by eating into the fruit of the tomato. The caterpillar most frequently met with is the larva of the corn moth (*Heliothis m.*), that does so much damage to cotton under the name of the boll worm. Spraying with arsenate of lead is one of the best remedies. The use of trap lanterns will also result in the destruction of a number of the mature insects.

*Potato Moth.*—This insect frequently causes serious loss to the growers of English potatoes. The moth lays its eggs on the stalk of the potato or on the potato itself, when the latter is exposed; and these eggs hatch out into small caterpillars that eat into and tunnel through the tuber, rendering it in many cases totally unfit for use. Spraying with arsenical poison, used in conjunction with Bordeaux mixture, will have a beneficial effect; but the best remedy is to keep the potatoes, when growing, well covered up by the soil, as if there are any potatoes at or near the surface of the soil they are practically certain to become infested. The soil should be kept in a fine state of tilth, and the potatoes should be well covered. If this is done the moth will be unable to get at the tuber. If the soil is allowed to become too dry and cracks, this will let the moths get at the tubers, so that cultivation to prevent this taking place must be given. When planting, select seed free from the moth; and, when harvesting, grade out, boil, and feed to pigs all moth-infested tubers. Boil all bags that have held infested tubers as they are frequently full of the pupæ of the moth. If these simple precautions are carried out, the loss caused by this insect will be materially reduced.

*Sweet Potato Weevil.*—The larvæ of this insect, like that of the potato moth, attack the tubers and render them valueless. The mature insect lays its eggs in the stem of the plant at or near the surface of the

ground, and the larvæ, as they hatch, eat into the stalk and proceed thence to the tubers. It is a difficult insect to deal with, as it is not easy to destroy the mature insects, though Mr. S. C. Voller, of Enoggera, informs me that he has found that the application of sulphur round the stems of the plants has prevented the weevils from attacking them. The best remedies known are preventive ones—namely, to obtain clean seed or cuttings and to destroy all infested stems or tubers, and to on no account allow them to remain in or on the ground to become a breeding-ground from which succeeding crops will be infested.

(4) *Insects Boring into the Roots, Stem, or Branches.*

Comparatively little damage is done by true root-borers in Queensland, the insects that cause most damage to the roots of trees or plants being either the larvæ of several species of cockchafer, cutworms, or nematodes, such as the devastating eel-worm. For the first the only remedy that has been of any material benefit hitherto is the gathering and destruction of the mature insects, as so far it has not been found practicable to destroy the larvæ in the soil except in limited areas, when the use of bisulphide of carbon has proved effectual. Cutworms may be kept in check by the use of arsenical poisons; but a great deal can be done to lessen the damage caused by these two classes of insects by protecting our insectivorous birds, particularly such sorts as the ibis, magpie, magpie or mudlark, and even the common crow, for with all its faults the crow destroys a large number of insects. As to the third class of insects I am sorry to say that not only are they extremely difficult to deal with, but they are spreading in many parts of the State. These insects are minute worms that attack the roots of widely different sorts of plants. Usually they produce nodules of wart-like excrescences on the roots that sometimes do little serious damage, but at others kill the plant right out. These worms usually work near the surface of the ground, though occasionally they will penetrate to some depth in friable soils. Grape-vines are already affected in several parts of the State, and the injury caused is so serious that immediate steps should be taken to prevent the spread of the pest, by prohibiting the removal of rooted plants of any kind from infested land. In planting new vineyards precautions should be taken first to secure clean cuttings, and also to prevent the growth of surface roots by such cuttings when planted, as, if all the surface roots are cut off, there is little chance of the roots that are deeper in the soil becoming affected.

(To be continued.)

# THE DAIRY PRODUCE ACT, 1910.

## REGULATIONS BRIEFLY EXPLAINED.

By R. A. BLACK, Chief Clerk, in conjunction with AUG. CONLAN, Dairy Expert.

**T**HE object of this bulletin is to explain some of the regulations made under the abovenamed Act on the 17th March, 1911. We believe that to many dairymen and others several of them would be difficult to define without the Act, and therefore it is thought advisable that these should be briefly explained for the direct benefit of those concerned. Copies of this bulletin and the forms referred to herein may be obtained from the Department free of charge, and therefore it is trusted that in the interests of the industry dairymen and others will carefully peruse the bulletin and make every endeavour to comply with the regulations set forth therein.

Government Notice No. 115.

Agricultural and Stock Department,

Hobart, 17th March, 1911.

His Excellency the Governor in Council has been pleased to make the following regulations under "The Dairy Produce Act, 1910" (1 Geo. V. No. 46).

By His Excellency's Command,

GAM. H. BUTLER, for Minister of Agriculture.

## REGULATIONS UNDER "THE DAIRY PRODUCE ACT, 1910."

1. In these regulations, unless a contrary intention appears:—

"The Act" means "The Dairy Produce Act, 1910."

This Act (1 Geo. V. No. 46) was actually to commence and take effect on and from 1st January, 1911, but it did not come into operation until the 2nd March, 1911, because it was necessary to declare by proclamation the names of the districts in which it was to be in force. The Act is made to apply to the whole of Tasmania and its Dependencies.

"Director" and "owner" respectively have meanings assigned to them by the Act.

The "Director" means the Director of Agriculture for the time being for this State; and "owner" means the owner, whether jointly or severally. The term includes the owner's agent or manager; and in the case of a company, the manager, secretary, or other principal officers thereof; when applied to premises the term includes the person having the charge, management, or control of the same.

2. Applications for the registration of dairies and factories shall be in the forms contained in Schedules A and B respectively. The certificate of registration shall be in the form contained in Schedule C.

It is compulsory for owners of dairies and factories to register annually their premises used for such purposes within three months after they are so used. Those used at the commencement of the Act (1st January, 1911) were given grace to the 28th February, 1911. There is, however, a proviso that there will be no need for owners to register

if butter, cheese, or condensed milk are not intended to be prepared or manufactured from the cream or milk of such dairies. For instance, there are many dairies from which milk or cream is supplied direct to the consumer (householder); such owners will, nevertheless, be liable to the other provisions of the Act. There is one case where the Act is not applicable, and that is when dairy produce is intended for the use of any owner for consumption on his premises and is not sold or offered or exposed for sale to the public. For instance, there are large numbers of people who keep one or two cows for household purposes. In such cases these would not be liable to registration.

Owners of dairies liable to registration are not required to pay any fee; but owners of all factories are required to pay an annual fee of £1. Registration in each case remains in force from the day following the date thereof until the 31st December then next ensuing.

3. In the event of any change of ownership of a dairy or factory notice thereof, stating the full name and postal address of the new owner, shall be given forthwith by the registered owner to the Director.

Any registration at the time of the change of ownership without reference to the Director would cease.

1. Postage stamps will in no case be accepted in payment of fees due under the Act or these regulations.

#### *Cleansing of Utensils.*

5. The separator-bowl and all parts of the separator which come into contact with milk shall be thoroughly cleansed on each occasion immediately after the process of separating—first by immersion in cold water, and then cleansed by steam or boiling water, and all dairy utensils shall be promptly cleansed in the same manner.

6. All vessels used for carrying milk or cream to a dairy or factory shall, before being taken away from such dairy or factory, be cleansed by cold water, and then by steam or boiling water, and, where practicable, thoroughly aired. Before clean utensils brought from a dairy or factory are refilled with milk or cream they shall be rinsed out with clean water and aired.

If it is impossible to clean a vessel soon after use, it should be kept filled with or immersed in water.

All dairy utensils must first be rinsed with cold or lukewarm water (not hot); then clean every part with a brush, using hot water and soda.

Avoid using soap. Avoid using cloths.

A half per cent. solution of soda is one of the best germicides known when used hot. This means—

Washing soda,  $\frac{1}{2}$ -lb., = 8 ounces

Hot water, 100 lb., = 10 gallons

or  $2\frac{1}{2}$  to 3 ounces of soda to a bucket of water. When clean, rinse thoroughly, then scald by dipping into boiling water. Tinware should not be dried with a cloth, but simply placed (inverted) on a rack while hot, and in a pure atmosphere.

#### **Wooden Articles:**

Churn, butter-worker, pats, &c., after use should immediately be well rinsed with cold water, then cleaned the same as tinware.

Keep the lids off all cans, churns, &c.

If the churn is likely to remain idle for some time, keep it filled with lime-water. All milk vessels and wooden articles which have not been used for some time should be immersed in lime-water for a day or so.



Lime-water is made by adding a few pounds (two or three) of quicklime to a barrel of water.

All dairy utensils should be periodically placed in the sun, but wooden articles should be removed before the heat is sufficient to crack or warp them.

*Separate Utensils to be used for the Conveyance of Whey.*

7. No whey shall be removed from a factory in any vessel which is used for the carriage of milk or cream.

Whey from a cheese factory is always sour, and therefore contains multitudes of souring and (frequently) other undesirable germs, making it a difficult matter to thoroughly cleanse the utensils. The acid properties of the whey also affect the metal of the containing cans.

*Conveyances and Utensils to be Protected from the Heat of the Sun.*

8. All conveyances used for the carting of milk or cream to a dairy or factory shall be provided with a cover to ensure effectual protection from the heat of the sun. All vessels, when actually containing milk or cream, shall be effectually protected from the heat of the sun.

The sun's rays, when no protection is given, raise the temperature of the milk or cream in a very short time. This immediately causes increased activity of the ferments and a rapid increase in germ life, which leads to a quick deterioration of the milk or cream.

Germ life and ferments are least active when the temperature is low; therefore all milk and cream should be rapidly cooled, and kept cool during transit; this is one of the most important rules in dairying.

A shelter should always be erected when cream is left at the roadside for collection.

A wet bag drawn over the can cools cream quickly by the evaporation of moisture from the bag.

*Disposal of Manure.*

9. Every cow-bail shall be kept clean, and the droppings of cows shall be gathered after each milking and removed to a manure heap, which shall be at least 100 feet away from the bails.

Manure contains many filth germs of an acid and gas forming variety which do untold damage in the dairy.

An overhead carrier for the conveyance of the manure to a distance can be erected very cheaply, and is a great labour-saver.

*Milking Bails or Sheds.*

10. Every owner of a dairy shall cause the cow-bails and sheds used in connection with such dairy to be covered with a roof that is weatherproof, and to be constructed at least 7 feet in height above the floor-level, and to be lighted and ventilated to the satisfaction of the Director. He shall also cause the floor of such bails or sheds to be constructed of a durable non-absorbent material, laid in such a manner as to be watertight, and graded with a slope to an open drain running the full length of the building, and of such a width as to be capable of being swept with a broom; and shall cause it to be continued for a distance of at least 30 feet beyond the confines of the cow-bails or sheds.

11. The ceiling or interior of the roof and the walls of every cow-bail or shed shall be properly lime-washed at least twice in every year—once during the month of September, and once during the month of March, and at such other times as may be ordered by the Director or by a supervisor or other person duly authorised by the Director.

All operations should be based on the necessity of preventing the access of dust or dirt to the milk.

Sprinkle the stable-floor with water before the cows are brought in.

Cows should be cleaned by brushing before entering shed. The flanks and udder should be wiped with a damp cloth just before milking.

Wash your hands in clean water before commencing to milk each cow.

Never wet the hands with milk. If you have a difficulty in milking, moisten the hands with clean water, or use a very little pure vaseline.

Wear clean overalls or apron.

Remove the milk from stable and strain immediately.

Separate as quickly as possible after milking; cold milk means loss of butter fat. If necessary bring back to 80° F. by placing vessel with milk in another containing hot water, and keeping well stirred.

Never allow pails or cans to remain in or near cow stables.

After milking remove all litter and clean up stable thoroughly.

Never give dry or dusty feed to cows during milking.

Never feed roots or ensilage in the milking shed.

Rusty cans or tinware produce a tallowy butter.

The best floor is undoubtedly concrete, but slabs laid in two layers with broken joints and dressed with boiling tar and sand make a good floor.

(To be continued.)



THE export of butter from this State can develop into gigantic proportions for this reason: that being a carbohydrate, butter does not drain the fertility of the soil in the slightest degree.

## GARDEN NOTES FOR JANUARY.

By J. OSBORNE, JUN., Horticultural Instructor.

### FLOWER GARDEN.

**C**LOSE attention to weeding and watering will be necessary this month, as the maximum of growth will be reached by most of the plants. The hoe should be kept at work early and late to prevent the soil settling too closely around the roots.

When watering, do it thoroughly, as one good soaking is worth five light waterings.

Plants in full flower should be watched, and all spent blooms removed, in order to prolong the flowering period.

The early gladioli should now be rested. Withhold water, and mulch the beds with straw, unless it is intended to remove the bulbs. This may be done as soon as the foliage has become yellow or brown.

Where beds are available, early flowering bulbs, such as anemone, ranunculus, freesia, &c., may be planted. Water the beds thoroughly before planting, and allow them to drain for a couple of days prior to planting. Do not water again till the bulbs show through the soil.

Sow sweet peas for late autumn flowering, and keep the flowers gathered from those in bloom.

Asters that are growing vigorously should be top-dressed with good stable manure, putting in from 2 to 3 inches between the rows.

Dahlia beds may receive like attention.

The roses should be looked to for aphides. Syringe with phenyle, 1 in 60. Remove all old flowers, cutting well down on the shoot. This will induce new growth. New growth means a new supply of flowers. The summer roses are often the best of the year.

Chrysanthemums should be watched for oidium. Where it appears, dust in the early morning with flowers of sulphur. Tie up when necessary, and top-dress with good, short manure, for the chrysanthemum is a great feeder.

The early-flowering narcissi may be planted about the end of the month. Give the beds much the same treatment advised for anemone, &c. Keep the hoe at work.

Herbaceous plants should still be in their prime. Give liberal supplies of water, and, if available, a top-dressing of short stable manure.

Edging plants should be at their best just now. Water freely.

Select cuttings of the best carnations and put them in, using pots or shallow boxes (3½ inches to 4 inches deep). A compost of loam and sharp clean sand is best for the purpose. Water carefully, and only when the soil becomes dry. Keep the old plants (carnations) tied up to prevent breakages.

The biennials sown in December should be fit to "prick" out toward the end of the month. Use a well-prepared compost—one part loam, one

part good peat, one part well decayed stable manure that has been kept for at least one year, one part sand (good, clean river sand if procurable, failing that, sea-sand from above high-water mark). When pricking out use shallow boxes; apple cases, divided, are very suitable. Put the plants out  $1\frac{1}{2}$  inch apart at least. Shelter for a few days from the heat of the sun. Water carefully.

Sow *mignonette* for early winter flowering. Do not cover deeply, and water with fine-rose watering-pot.

Take up all Spanish iris, and store for a few weeks in a cool, dry place.

Keep a sharp look-out for aphides and other insects. Keep the hoe going when the soil is at all dry.

#### KITCHEN GARDEN.

All crops in this section should be at their best. Cultivation and the application of water with a generous hand will be needed during the month. Sow Canadian Wonder beans for autumn use; a few broad Windsors also. Have the beds dug deeply, and use manure liberally.

Plant cauliflowers, cabbage, and lettuce. This should be the largest planting, for the growth will not be as rapid as was the case before the end of the year, and there will be much less likelihood of loss. Puddle the plants prior to setting out.

Turnip (Golden Ball), radish (long red), round-leaf spinach, may be sown. The beds should be larger at this time, as the growth will be less rapid. The plants will not outgrow their usefulness. Do not sow too thickly. During the first week, sow cauliflower (Autumn Giant, Walcheren), Enfield Market, St. John's Day cabbage, and White Cos lettuce. These should be ready to transplant during February.

Thin out tomatoes to hasten ripening. Do not neglect the rhubarb and asparagus beds; these require copious waterings during the summer months.

Small fruits should be at their best now. Withhold water; too much moisture spoils the fruit.

Celery may be planted still for use in the late autumn. Kale pits should receive moisture plentifully.

Keep the onion bed free of weeds, and where growth of stalk is good it is well to go through and bend them down. This will cause the bulb to increase in size. Do not spare the hoe.

#### GREENHOUSE.

Now is the time to pot up the plants "pricked" off last month. Use a good compost of loam, peat, well-decayed stable manure, clean drift-sand in equal parts;  $3\frac{1}{2}$ -inch pots may be used. Shade for a few days, and put them in an airy position. Apply water carefully.

*Begonia* (tuberous), *gloxinia*, and *streptocarpus* raised from cuttings may be potted also.

Take care of the ferns and palms. Give water freely. Syringe morning and evening.

Pelargoniums may be cut down during the month. Put the cuttings into a sandy compost, using 5 or 6 inch pots. Be very careful in applying water to the cuttings, and the old plants also.

Cuttings of azalea, erica, and the Indian rhododendron may be taken during the first half of the month. Look out for aphides, thrips, red spider, &c.

Ventilate freely, and use plenty of water on the floor of the house.

## WEATHER AND CROPS.

**MOOREVILLE ROAD.**—Most of the early potatoes were badly "cut" by frost; but in those instances where they were not affected there is every promise of good crops. Late potatoes are looking well, and oats give promise of a satisfactory yield. The weather generally has been fine, with light showers and strong westerly and south-westerly winds.

**PRESTON.**—The past month has been dry in the extreme, little or no rain falling. Strong winds have had a drying effect. There will be very little crop to harvest, and the grass is drying up fast. Stock of all kinds are cheap, and almost unsaleable at low rates.

**SCOTTSDALE.**—The weather during November was exceptionally dry, with hot north-west winds. The late crops suffered to the greatest extent; paddocks that gave promise of heavy yields are now out in ear and only about a foot high. It is surprising how many farmers are late always with their crops. It would seem that as a paddock has only to be put in once a year, it may as well be put in in March as September. As a good farmer remarked to the writer: "The only man who can afford to have late crops is a rich man who can do without them." Some farmers are still planting potatoes in a desultory sort of way, but the acreage will be very much less than usual. There are some nice paddocks out in flower, and one farmer has already sprayed twice, and said he intended to "keep on doing it," blight or no blight. The spraying is not such a big job, and it is a wonder that so many farmers have their "back up" over it, especially when the results are practically guaranteed by experience. Ewes have lambed well this year, and those that have made any provision for "feed" should do well. Grass has gone off a little, but a few showers will revive it. The new Scottsdale Co-operative Dairy Factory is merrily humming away, grinding out big cheques for the suppliers and dividends for fortunate shareholders. The tobacco supplied to us has been used in a variety of ways—as a manure for spuds and for keeping slugs off the cabbage patch, &c.

**SOUTH BRUNI.**—Wind, wind, wind, week in, week out, describes the weather experienced on South Bruni. There has been plenty of rain, but the wind has dried it up as soon as precipitated, thus rendering the surface hard. Young growth is being sadly battered. Grass at a standstill. Not much crop, and what there is varies from good to moderate. Fruit: Apples good, except Scarlets, which are light. Pears: Few grown, and a light setting. Stone fruits very good, but few grown. Stock in good order. Milk in full flow.

## BOARDS OF AGRICULTURE.

THE following list shows the Boards of Agriculture, &c., together with the name and postal address of the Honorary Secretary:—

BOARD.	HON. SECRETARY.	ADDRESS.
Avoca	H. Bennell	Avoca
Barrington Lower	A. E. Moore	Lower Barrington
Beulah	A. Oliver	Beulah
Carnarvon	D. B. Blackwood	Carnarvon
Clarence	R. Black	Hobart
Cressy	James Anderson	Cressy
Ellendale	H. L. Switte	Ellendale
Exton	J. H. Room	Exton
East Mersey	E. D. Kelly	Wesley Vale
East Tamar	W. Carnie	Newnham
Elliott	L. H. Shepherd	Elliott
Forth	H. A. Vertigan	Forth
Flowerdale Upper	J. A. Smith	Upper Flowerdale
Frankford	M. de H. Ponsonby	Frankford
Franklin	W. J. Blackman	Castle Forbes Bay
Geeveston	F. Hyndes	Geeveston
Glengarry	W. Wheldon	Glengarry
Glen Huon	P. H. Young	Glen Huon
Glenorchy	Hon. W. Clifford	Glenorchy
Irish Town	E. L. Smith	Irish Town
Kettering	S. Sargison	Kettering
Kindred	C. Polden	Kindred
Kingston	J. R. Green	Kingston
King Island	A. Bertram	King Island
Lilydale	S. Wellington	Lilydale
Lovett	W. O. Gilbert	Lovett
Lymington South	T. Burnaby	Lymington
Macquarie Plains	H. W. Shoobridge	Bushy Park
Marrawah	E. Bonhôte	Marrawah
Mt. Pleasant	B. B. Morrison	York Plains
Mt. Seymour	W. Wilson	Mt. Seymour
Mowbray	G. H. Boatwright	Smithton
Mooreville-road	W. White	C/o W. Spinks, Mooreville-road
New Ground	J. L. Thomas	Moriarty
North Motton	O. Waters	North Motton
Nook	J. H. Lyons	Nook
North-Western Fruit-growers' Association	C. Stackhouse	West Devonport
Northdown	H. J. Henri	Northdown
Nubeena	W. J. Tomkinson	Nubeena
Premaydena	T. F. Locke	Premaydena
Queenborough	W. H. Connor	Sandy Bay
Ringarooma	L. J. Collins	Ringarooma
Railton	Jas. Blenkhorn	Railton
Riana	A. Oliver	Riana
Rubicon	C. Slater	Elizabeth Town
Ridgley	W. Morris	Ridgley
Scottsdale	J. B. Hayes	Scottsdale
Scottsdale West	N. S. Bostock	West Scottsdale
Sheffield	O. Ridley	Sheffield
South Preston	F. Tongs	South Preston
St. Helens	C. R. Bowling	St. Helens
St. Marys	Col. Legge	Cullenswood
St. Patrick's River and Myrtle Bank	W. A. Carins	Myrtle Bank
Sprent	A. Lee	Sprent
Staverton	T. Wootton	Staverton

## BOARDS OF AGRICULTURE continued.

BOARD.	HON. SECRETARY.	ADDRESS.
St. Leonards	W. J. Figgis	St. Leonards
Stoodley	J. Leo	Stoodley
Stowport	J. G. Pearson	Round Hill, Burnie
South Springfield	J. Molphy	South Springfield
South Brun	E. H. Pybus	Adventure Bay
Table Cape	H. J. Smith	Wynyard
Tyenna	F. M. Smith	Tyenna
Upper Mountain River	A. Griffiths	Grove
Wattle Grove	K. Lord	Wattle Grove (Lower)
West Tamar	H. Robinson	Frankford

## Barrington, November 4.

**PRESENT.**—Messrs. A. Rolls (chair), J. A. Moore, A. Morey, J. Cocker, C. Packett, R. Elwood, H. Spurr, W. Crocker, E. H. Moore, and A. E. Moore (Hon. Secretary).

**LAND TAXATION.**—Members were unanimously of opinion that a tax on the unimproved value was preferable to any other form of land taxation.

**DESTRUCTION OF BLACKBERRIES.**—It was thought that landowners should "clear out and grade," and that the work of keeping the blackberries cut down afterwards should fall upon the municipal council.

## Bentley, November 5.

**PRESENT.**—W. J. Richardson (Chairman), V. Richardson, W. T. Stephens, E. J. Hodgkinson, and A. G. Oliver (Secretary).

**FARRIERS.**—Resolved, "That this Board does not approve of farriers being certificated, as it would probably mean a rise in the price of shoeing, and that it debarred apprentices from practising."

**DESTRUCTION OF SPARROWS.**—It was considered that poisoning was the best method to get rid of the pest, and that it should be made compulsory. The best time to lay poison is when a paddock has been sown and harrowed. The poisoned grain should be sown around the fences, and be similar grain to that which is sown for the crop. An effective way to prepare the poisoned grain is to get a gallon pot or boiler, put in as much water as the pot of grain would absorb and about sixpenny-worth of strychnine; boil till the grain has soaked up all the liquid. This will be found effective if sown about the paddock.

**CORNSACKS.**—This Board approves of cornsacks being of a uniform size, to hold 4 bushels of oats, or not more than 200 lb. of any other grain, and urges the Director of Agriculture to bring the matter under the notice of the Federal authorities.

**GUM SPROUTS.**—The best time to deal with sprouts of gums, after firing, was to knock them off during the month of May; and cut ferns during the early autumn, and not to burn them.

**WAX MATCHES.**—Resolved, That it is not necessary to prohibit the use of wax matches. If considered dangerous by any farmer, he could prohibit their use on his farm.

## Carnarvon, October 7.

**PRESENT.**—Messrs. Tanner (chair), G. Eldridge, G. Wellard, J. A. McGinniss, J. McArthur, J. P. Mathias, W. D. O'Neil, J. C. Mathias, W. R. McGinniss, and D. B. Blackwood (Hon. Secretary).

**SPARROW PEST.**—Mr. Wellard stated that he had used poisoned wheat at sowing time with much success.

**FERNS AND SPROUTS ON GUM TREES AFTER FIRING.**—The only effectual way to kill ferns is by ploughing and working the land in summer time. With regard to stumps sprouting after firing, knocking them off is the only known method practised here.

**FRUIT HANDLING.**—This Board is of opinion that the local boats should handle the fruit on trays, the same as the ocean-going vessels do.

**CORNSACKS.**—This Board is in favour of bags being a standard size.

### Clarence, December 2.

**PRESENT.**—The Hon. James Murdoch, M.L.C. (Chairman), Messrs. O. G. Morrisby, E. P. Davies, John Cotton, H. Jolliffe, C. F. Percy, T. Johnson, W. Lamb, A. Allison, Joseph Salmon, S. Salmon, W. C. Cato, T. Dawson, and the Secretary (Mr. R. A. Black).

**SIZE OF CORNSACKS.**—The Secretary said that he had been making inquiries into this matter, and had found that there was already a Commonwealth regulation dealing with the size of cornsacks. That regulation related to cornsacks imported into the Commonwealth, and provided that the size should be 41 inches by 23 inches, the weight when baled 2½ lb., and substance 8 porter, 9 shot. There was no law relating to the exportation of cornsacks, but the Customs officers were directed from the head office that it may be found that bags will be imported which, although not containing more than 200 lb. at the time of importation, are to be used again and filled so as to contain more than 200 lb. Should it come under notice that the bags are being so used, the matter is to be immediately reported to the head office.

**WHITE WEED.** Mr. S. Salmon read an interesting paper on the subject, as follows: "The infestation has reached a point that calls for immediate attention. I am aware that it is a prohibited weed, but in some municipalities no steps are being taken for its eradication. As municipal councils have the administration of the law dealing with the destruction of noxious weeds, I think that we should make public any information that will enable them to take proper and prompt measures to deal with the pest. The white weed has evidently come to stay, and if we do not take care, it will affect the values of our lands detrimentally. It is admitted to be far more injurious than Cape weed and Californian thistle, and observant men state that it bids fair to overrun and take possession of all the best lands in Tasmania.

"The white weed is useless as a fodder plant. I believe that we are to have inspectors in most districts, and therefore it should be the duty of some person to call for an immediate report as to what is really being done in the districts that we know to be infected with white weed, or obtain information from any available and reliable source. Those on the land who have had, say, two years' experience with this weed are aware that it is an utter impossibility to eradicate this plant that is so ruinous to any crops. I should be sorry to advocate extreme or harsh measures, but I think the owners in those districts that are free from the pest should be warned of the danger they incur by bringing chaff and seed grain from the infected places, or even horses that have been feeding on white weed infested fodder. Tasmania is possessed of a large area of rich marsh land and river flats used for cultivation, fattening, and dairy purposes, and at present mostly free from 'noxious weeds.'

"We also have a large and expensive staff of officials who might do something more than is being done to protect the landowner or all interested in land from such a ruinous loss as is now threatening the country, and the depreciation of this valuable land to say one-third of its value by allowing the white weed to be cultivated and sold in chaff fodder and so disseminated



all round, more often by the public works road contractors, who usually send to Hobart for a few bags of chaff."

Mr. Salmon also read the following letter on the subject, which he had received from Mr. Arthur H. Burbury, of Charlton, Ross:—"I have yours of the 27th instant, and note contents *re* white weed. This pest is bad in several places in this district, and seems to be increasing. It is a very bad weed, and wherever it gets in and the land is cultivated it spreads very rapidly. Every small section broken off roots will shoot and make a new plant. I do not consider that any land should be cultivated when the weeds get in; of course, in the case of paddocks where only an isolated patch or two show, those patches may be pegged off and not cultivated, thus allowing of the bulk of the paddock being worked.

"The pest does not seem to make much headway in ordinary lea paddocks, except in places which are damp, such as where soakage occurs, or on patches where, from any reason, the land becomes enriched. The plant being small and silky-looking can easily be kept down when in flower and prevented from spreading. I have not known any patches treated in such a way as to kill them out, but no doubt if such were very thoroughly hoed, or shaved frequently, so as to prevent the plants from coming to the surface of the ground, it would be possible to kill the weed. I do not think stock will touch it unless there is nothing else for them to get. I would say no land should be cultivated which has white weed in it, and all patches should be carefully cut down in spring to prevent seeding. In this way it seems possible to prevent the weed from spreading to any extent."

The Secretary stated that the present law was that the white weed was proclaimed by the Government as a noxious weed in Tasmania under the "Noxious Weeds Act" on October 29, 1908, and it rested with the municipalities to enforce the law. Any occupier of land upon which the weed was growing, not keeping it cut down in such a manner as to prevent blossoming, was liable to a penalty not exceeding £20. And any person who removed hay, straw, grass seed, chaff, or corn containing the seed of this or any other proclaimed weed was liable to a penalty of not less than 40s. or more than £25.

**TIMBER FOR FRUIT-CASES.**—The following paper was read by Mr. W. C. Cato:—"Nature has given to Tasmania a climate and soil eminently suited to the production of all pomaceous fruits, as well as others which flourish within the temperate zone, but the fruitgrowing industry would be seriously handicapped were it not for her splendid timber supply, which has provided millions of cases for the export of fruit not only to the other Australian States, but to Great Britain and other countries of the world. Speaking from an experience extending over several years, I have no hesitation in saying that Tasmania possesses in her swamp gum (*Eucalyptus regnans*) forests a timber in every way suitable for fruit-cases. This timber is odourless, and when seasoned, if cut from young timber, which is the best, is almost as light as pine, yet possesses the strength characteristic of our eucalypts. These qualities make it an ideal fruit-case timber for export purposes. Blue-gum is altogether too heavy for fruit-cases, and stringy-bark timber, although lighter, is more liable when seasoned to split in nailing. Swamp-gum requires to be properly seasoned before being made up into cases, and this point cannot be too strongly urged, as most of the defects noticed in our cases are due to want of care in respect of seasoning. The sawmiller will supply the timber cut to the size ordered, and it should always be ordered full cut to allow for shrinkage. To season the timber, it should be placed under cover, so as to prevent discolouration by the weather, and should be so stacked as to admit of a current of air passing through the stack between each piece of timber. At the expiration of, say, four months, the timber should be sufficiently seasoned, and may then be made up into fruit-cases. Our Horticul-

tural Expert estimates that within 20 years, if orchard-planting continues at the present rate, Tasmania will produce for export alone 10,000,000 bushels of fruit. This quantity will require at least 50,000,000 superficial feet of timber, which would represent more than the total output from all the saw-mills throughout Tasmania in one year. Mr. Osborne's estimate may not be reached, but it is generally admitted that there will be a very large increase in the quantity of fruit available for export in the near future, and it is therefore a matter of very great importance that the timber proved to be the most suitable for export cases should be properly conserved, so that the permanence of the supply may be assured to meet future requirements. In the interests of the export of fruit and other products South Australia has created large plantations of exotic pines. This State has practically no indigenous forests of hardwood timber of commercial value. There the timber used for fruit-cases is the *Pinus insignis*, which is cut up by the State saw-mills, and costs the exporter more than double the price paid here for Tasmanian hardwood cases. In a paper read before the recent conference of the Boards of Agriculture at Launceston, the writer suggested that the Monterey pine (better known as the *Pinus insignis*) should be grown here for fruit-cases, but as our indigenous forests produce a suitable timber in abundance, and at less than half the cost of the pine cases, it should, I respectfully submit, be the policy of this State to conserve what it has, rather than to cultivate a pine which may not be so suitable for the purpose required, and has proved in South Australia to be more expensive. Whilst it is claimed for the *Pinus insignis* that it matures earlier than our own eucalypts, it is generally admitted by those who have been engaged for many years in cutting timber for fruit-cases that the swamp-gum is at its best for this purpose during what is termed the 'sapling stage' of its growth, say, between 30 and 40 years old, and this assumes that a forest may reproduce itself within that period. It would appear from an article published in the 'Mercury' of a recent date that, in addition to the suitability of swamp-gum for fruit-case material, it has been found to be a better timber for the manufacture of wood-wool than the willow, which has hitherto been used for this purpose. In view of the fact that wood-wool is becoming so extensively used for the packing of fruit, this discovery should prove of considerable value to the fruit industry of this State, and will further serve to emphasise the necessity for the proper and efficient conservation of this valuable timber, upon which our export trade in fruit and other products depends."

Mr. Cato, in reply to questions, said that the New South Wales Government sent fruit home in pine cases. It was objected that pinewood cases were too heating for the fruit, and it was strongly urged that hardwood cases should be substituted.

#### East Mersey, November 14.

PRESENT.—Messrs. F. J. Piper (Chairman), Dyer, Mawer, Stacey, Brown, and E. D. Kelly (Secretary).

SPARROW PEST.—Destroying eggs and concerted action when food was scarce, poisoning taken up generally, would be found effective.

CORNSACKS.—On the motion of Mr. Brown, seconded by Mr. Stacey, it was decided to support East Tamar Board *re* approaching Federal Government to legislate for a standard bag to carry 3 bushels or 200 lb., which at present many do not.

FERNS.—Ploughing in February and cutting was considered the best way of dealing with the fern nuisance.

NEW MEMBER.—Mr. E. Clarke.

**Ellendale, November 29.**

**PRESENT.**—Messrs. G. Cook (Chairman), Stanfield, G. Clark, G. E. Clarke, D. McConnell, J. F. Barrett, E. Rayner, C. Ransley, and H. L. Swifts (Hon. Secretary).

**NEW MEMBERS.**—Messrs. C. and N. Ransley.

**PAPERS.**—It was decided that the Director of Agriculture be requested to ask the Boards of Agriculture in the State for expressions of opinion with reference to the best way of eradicating docks; and also with regard to what is commonly called "Cumberland disease" in sheep, its cause, best remedies, and methods of prevention.

**Hobart, November 29.**

**PRESENT.**—Mr. L. Rodway (Chairman), Messrs. J. Wardman, Thos. Williamson, F. E. Ward, P. Johnston, W. Woolley, C. Wessing, and W. H. Connor (Hon. Secretary).

**RASPBERRY DISEASE.**—Mr. C. Wessing placed on the table specimens of raspberry canes dying and dead, apparently as the result of a fungus attacking the underground portion, and gave a lucid account of the progress of the disease. He pointed out that once it commenced no treatment appeared to stay its course, and as it did not appear to spread from one centre, but picked out sets indiscriminately, there appeared no hope of isolating, and he was faced with the necessity of rooting up the whole patch.

The Chairman pointed out that the appearance of the cane, a felt of white fungus over the whole underground stock and the uniform death of the whole shoot, left no doubt, but that the fungus was responsible for the trouble. He pointed out that it was quite impossible to say in the present state of the vines exactly what fungus it was, and it was very desirable that continuous observation should be made till the spore-bearing bodies were produced. The disease was evidently caused by a fungus whose natural habitat was on dead wood, from which it spread to and killed the living portion. A number of fungi have this habit, but how many we do not know. The subject has only recently been inquired into, and it would be to the interest of the community if a thorough investigation could be made. Already four such fungi have been blamed for the loss of raspberry canes in Australia—the honeyagaric; a brown-spored agaric (*Pholiota*); a puffball (*Lycoperdon*); and the New Zealand root disease (*Rosellinia*). There are doubtless many others. He could only emphasise the advice he had given on previous occasions, when dealing with a similar disease attacking hop vines, that every care should be taken to exclude deadwood from the soil in which such plants were grown.

**PRACTICAL HORTICULTURE.**—Mr. J. Wardman gave a most interesting paper on "Experimental Horticulture an Aid to the Practical." A hearty vote of thanks was accorded Mr. Wardman for his paper.

**Kettering, October 26 and November 3.**

*October 26.*

**PRESENT.**—Messrs. R. Creighton (Chairman), G. A. Harrison, J. Bradley, W. Sweeney, S. Sargison, H. New, F. Hawkes, H. Grattage, W. Baldwin, W. Ims, F. Webster, S. Hughes, C. Kisłowski, and H. Shepherd (Hon. Secretary).

**VISITORS.**—Messrs. R. H. Topham, G. Cole, J. G. Whittles, E. Flakmore, and A. Farnell.

**FRUIT.**—The above special meeting was called to discuss and receive signatures to a petition requesting the Federal authorities to appoint a royal commission to enquire into the present system of exporting and marketing fruit on oversea markets. After a lengthy discussion it was proposed by Mr.

Topham, and seconded by Mr. Cole, "That they sign petition," which received signatures of the majority of those present.

November 3.

**PRESENT.**—Messrs. R. Creighton (Chairman), G. A. Harrison, J. Bradley, F. Webster, E. Pitman, S. Sargison, W. Ims, H. New, J. Flakmore, Capt. Folder, H. Shepherd (Hon. Secretary).

**APOLOGY.**—Mr. F. G. Smith.

**SUBSCRIPTIONS.**—Messrs. R. Creighton, E. Pitman, J. Bradley, and J. Flakmore.

**SECRETARIAL.**—Mr. H. Shepherd said that owing to his leaving Kettering he would have to resign the secretaryship. Members expressed regret at losing Mr. Shepherd's services, and Mr. S. Sargison was appointed.

Kindred, December 6.

**PRESENT.**—W. P. Polden, Sen., A. R. Polden, T. B. Yaxley (chair), G. Medwin, J. J. Filluel, A. Mott, D. G. Cowle, F. Turner, G. Weindorfer, and C. C. Polden (Hon. Secretary).

**HANDLING OF POTATOES.** The Secretary was instructed to bring before the Director the need for better handling of potatoes at the ship's side.

**MANURES.** Mr. Medwin desired to seek some advice *re* analysis of manures.

Kingston, October 10 and November 7.

**PRESENT.**—Messrs. B. J. Pearsall (chair), D. W. Maddock, W. Wells, J. Andrews, G. Atkinson, F. Kirkup, R. O. Hazell, W. Hazell, and J. R. Green (Hon. Secretary).

**FRUIT EXPERT.**—A vote of thanks was accorded Messrs. Henwood, Maddock, and Green in connection with the visit of Mr. Osborne, the Fruit Expert. Members generally acknowledged that considerable benefits were to be derived from a practical demonstration by Mr. Osborne.

**CORNSACK.**—The Board unanimously resolved to recommend that a standard cornsack should contain 3 bushels of wheat or peas.

**SPARROWS.**—It was agreed that universal poisoning at sowing time would be the most effective method of destroying same.

**FERNS AND SPROUTS.** The most effectual means to kill ferns were, (1) sub-soiling, and (2) promptly cutting the young shoots. The only permanent remedy to kill the young shoots on stumps, &c., was to knock them off in the spring.

**FRUIT SHIPMENT.**—It was generally agreed that the Board strongly advocate the divided case for export. It was resolved to recommend the following:—(1) Any person shipping apples or pears to ports outside the Commonwealth should, in the interests of the industry, use cases made of well-seasoned timber; (2) that shipping companies be asked to supply well-seasoned timber as dunnage for storing cases on shipboard.

**NEW MEMBERS.**—Edward Barton Johnson, Frank Kirkup, H. Harris, W. C. Jenkins.

**APOLOGIES.**—Messrs. H. J. Rule and H. I. Pilcher.

**PAPER.**—The Hon. Secretary read a paper on "Manures."

Mooreville Road, October 2 and November 6.

October 2.

**PRESENT.**—Messrs. W. Spinks, T. Redman, A. J. Spinks, R. Laird, G. E. Russell, and W. White (Hon. Secretary).

**CORNSACK.**—Members expressed themselves as being in sympathy with the proposal of the East Tamar Board as regards the adoption of a uniform corn-

sack, and suggested that the standard should be taken by the measurement and weight of the sack.

**SEEDS.**--Pamphlets on "Irish Blight" and "How to Improve the Dairy Industry," also seeds sent by the Director for experimental purposes, were distributed among members.

*November 6.*

**PRESENT.**--Messrs. J. M. Douglas, A. J. Spinks, J. Connolly, W. Spinks, A. Pease, G. E. Russell, A. J. Redman, and W. White (Hon. Secretary).

**FERNS.**--It was considered that the best means of eradicating ferns was to cut them three times a year--from September to March. Members were of opinion that the best time to cut gum sprouts was during May or June.

**FARRIERS' CERTIFICATES.** Resolved, "That this Board does not favour the proposal to grant certificates to farriers."

**SUGAR-BEET.**--It was resolved that the Director be asked to supply the Board with information regarding the extraction of sugar from sugar-beet.

**Mowbray, November 8.**

**PRESENT.**--Messrs. G. Moore (chair), Geo. Brumby, W. Geale, C. Fixter, M. Groom, J. W. C. Hamilton, and the Secretary (Mr. G. H. Boatwright).

**WATER.**--Mr. Moore handed in a sample of water taken from a boiling spring in the Mowbray Swamp, asking that the same be submitted for analysis.

**SHOW.**--Proposed by Mr. Brumby, seconded by Mr. Geale, "That Mr. Heathorn be asked to call a meeting of the Agricultural Society to consider the advisability or otherwise of altering the date of annual show from autumn to spring; also to devise ways and means of establishing a bacon factory in our midst.

**BUTTER.**--The Chairman announced that the local butter factory bids fair to double the output of butter this season, which members considered augured well for the advancement of this district.

**PRUNING.**--Resolved, That application be made for the services of Mr. Osborne to demonstrate in summer pruning.

**Nubeena, November 11.**

**PRESENT.**--Messrs. E. G. Dergess (Chairman), J. R. Stacey, W. Suckling, J. Stacey, E. Noye, W. Price, T. Price, T. Free, A. Hayes, and W. J. Tomkinson (Hon. Secretary).

**SUBSCRIPTION.**--Resolved, That the membership fee be 2s. per annum.

**PAPER.**--Mr. E. G. Dergess (Chairman) promised to read a paper at the next meeting; and Mr. J. R. Stacey spoke on the South Australian Export Department.

**MEETING-ROOM.**--The Secretary was instructed to write to the Warden as to payment of fee for the use of the school for the Board's meetings.

**Railton, November 7.**

**PRESENT.**--Messrs. H. Priest (Chairman), W. D. Tune, W. Hamilton, J. Fraser, and the Secretary (Mr. J. Blenkhorn).

**FERNS.**--Mr. Hamilton stated that he found the best time to kill ferns to be the month of March--to cut them, and not to fire them.

**OUR WATER POWER.**--The Secretary read a paper dealing with the advisableness of the Government taking steps to utilise the water-supply in this State for agricultural purposes.--[The paper has been submitted to the Minister of Agriculture.--Ed.]

### South Bruni, November 18.

**PRESENT.**—**MESSRS.** W. H. Vaughan (chair), E. P. Vaughan, W. Vaughan, L. Bottomley, G. Edwards, P. Binns, C. A. Corney, and E. H. Pybus (Hon. Secretary).

**NEW MEMBERS.**—**MESSRS.** A. Buxton, S. Grundy, I. Farmer, D. C. Price, W. Brundle, and F. Edwards.

**VISITOR.**—Mr. A. Corney.

**FERNS.**—Mr. Buxton said that cutting just before frosts set in was useful, as the young growth was cut by the frost. Others thought that cutting in November was a good plan.

**GUM SUCKERS OR SPROUTS.**—Burning on their own stumps was one suggestion offered. Mr. Price said his experience was that if the saplings were cut in March and early April but few would sprout. He thought scrubbing should be done at that time; better burn-off would be had, and a more lasting benefit result.

### Tyenna, October 3 and November 6.

#### October 3.

**PRESENT.** **MESSRS.** A. Sharpe, B. Burnley, J. Burnley, F. Brown, S. Roberts, R. Marriott, Sen., P. Marriott, and T. M. Smith (Hon. Secretary).

**NEW MEMBER.**—Mr. W. O'May.

**CORNSACKS.** The Board is in favour of the 3-bushel bag being used.

**BITTER PIT.** New York, Sturmer, and Scarlets are the varieties of apples mostly affected. It is worse in trees of luxuriant growth, but not found in unsprayed trees.

**SPARROWS.** Members considered a small bounty should be paid for destroying same, and that sparrow clubs be formed.

#### November 6.

**PRESENT.** **MESSRS.** T. Brown, Lord, J. Burnley, B. Burnley, H. Abbott, T. Marriott, D. Marriott, C. Brown, Roberts, Sen., S. Roberts, O'May, and F. M. Smith (Hon. Secretary).

**NEW MEMBER.**—Mrs. Pitfield.

**ADVANCES TO SETTLERS.** It was resolved that under the "Advances to Settlers Act" settlers who require loans should be lent money on the present assessed value of their property, and not be put to the expense of a valuator.

**FERNS AND GUM SPROUTS.**—An article on destroying ferns was read from the "Leader" of July 8, 1911. The best treatment for gum sprouts was to continue to cut them.

## NORTH ESK PRODUCERS' UNION.

#### November 6.

**PRESENT.**—**MESSRS.** Boutflower (in the chair), H. Young, E. G. Young, R. N. Laird, H. Stapleton, F. Caswell, W. Caswell, W. Fysh, and the Secretary (Mr. W. Figgis).

**FERNS AND GUM SPROUTS.**—The best time and way to get rid of ferns and gum shoots is from February to March, and to keep continuously cutting in the early stages of growth.

**FERTILISER BILL.**—Resolved, That the Director be asked if the Bill of 1910, a draft of which is before the members, was the one to be resubmitted to the House? If not, is it the intention of the Director to further amend the Bill or to take any further steps in the matter?

**EXPERTS.**—The Secretary was directed to ask the Director for an early visit from the Poultry and Fruit Experts.

## METEOROLOGICAL.

RAINFALL IN TASMANIA DURING NOVEMBER, 1911 AND 1910.

\* Telegraphic only.

Station.	1911.	Wet Days.	1910.	Average.
<b>NORTHERN.</b>				
Marrawah .....	80	6	284	235
Cape Grim .....	112	10	230	212
Sunny Hills .....	271	13	309	—
Irish Town .....	233	15	339	—
Black River .....	76	7	284	241
Stanley .....	124	13	349	207
Flowerdale .....	—	—	363	—
Flowerdale Upper .....	121	7	444	290
Yolla .....	—	—	537	370
Wynyard .....	49	7	434	—
Burnie .....	50	7	329	238
Ridgley .....	82	9	306	—
Ulverstone .....	24	3	475	311
Kindred .....	38	9	455	—
Devonport .....	25	6	271	240
Latrobe .....	—	—	262	237
Northdown .....	—	—	284	151
Beaconsfield .....	10	4	216	—
Low Head .....	22	6	199	165
Black Bluff .....	296	8	609	—
Moina .....	196	12	510	—
Central Castra .....	57	5	414	346
Wilmot .....	81	9	458	—
Gawler .....	—	—	486	283
Sheffield .....	36	6	369	—
Deloraine .....	—	—	225	229
Caveside .....	54	9	394	—
Cressy .....	12	3	226	135
Longford .....	21	5	212	168
Westbury .....	19	7	261	185
Carriek .....	—	—	211	—
Launceston .....	19	7	219	186
Glengarry .....	29	7	296	226
Frankford .....	*19	—	302	216
Exeter .....	—	—	287	—
Lilydale .....	9	3	249	200
St. Patrick's River .....	38	4	307	—
Springfield .....	60	11	352	287
Springfield South .....	—	—	347	—
Scottsdale .....	29	4	313	263
Branxholm .....	32	3	285	—
Ringarooma .....	69	6	313	313
Smithton .....	162	—	—	—
<b>WEST COAST—MOUNTAIN REGION.</b>				
Temma .....	30	12	166	—
Mt. Balfour .....	—	—	441	—
Magnet .....	483	11	600	—
Waratah .....	*602	17	632	636
Que .....	430	13	—	—
Fuln .....	619	16	—	—
Mt. Read .....	972	21	838	809
Dundas .....	525	20	—	—
Zeelian .....	590	21	852	743
Mt. Lyell .....	986	21	1029	1021

## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Queenstown ... ..	776	16	744	—
Strahan ... ..	—	—	—	374
Cape Sorell ... ..	327	15	320	341
Pillinger ... ..	—	—	439	—
Stanley Reward ... ..	661	17	—	—
Chester ... ..	593	19	—	—
Renison Bell ... ..	588	16	—	—
CENTRAL PLATEAU.				
Great Lake ... ..	—	—	—	232
Circle ... ..	—	—	239	—
Roscarboro ... ..	—	—	231	—
Clarence ... ..	—	—	296	—
Bronte ... ..	244	14	228	—
Steppes ... ..	103	8	162	—
McGuire's Marsh ... ..	—	—	144	—
Woods' Quoin ... ..	99	9	250	—
Interlaken ... ..	—	—	140	202
Dog's Head ... ..	—	—	261	368
DERWENT VALLEY.				
Glenmark ... ..	—	—	248	—
Bashan ... ..	—	—	257	218
Osterley ... ..	203	7	204	—
Bothwell ... ..	131	14	117	165
Cleveland ... ..	231	11	315	—
Hamilton ... ..	150	10	126	158
Ellendale ... ..	459	14	304	244
Glenora ... ..	200	12	155	241
Belmont ... ..	—	—	93	146
Clarendon ... ..	160	12	104	152
New Norfolk ... ..	177	14	156	195
Uxbridge ... ..	330	14	271	247
Lachlan ... ..	184	8	137	208
Tyenna ... ..	395	13	—	—
SOUTH-EASTERN.				
South Bruni ... ..	190	13	155	309
Adventure Bay ... ..	229	13	224	—
Southport ... ..	*234	16	188	297
Lunawanna ... ..	—	—	81	—
Port Esperance ... ..	—	—	193	224
Port Cygnet ... ..	*213	13	173	—
Petchey's Bay ... ..	253	13	171	—
Middleton, Channel ... ..	199	13	194	—
Kettering ... ..	188	15	194	—
Franklin ... ..	301	9	237	256
Kington ... ..	153	12	—	—
Mt. Nelson ... ..	146	8	156	241
Mt. Wellington (Gap) ... ..	266	—	316	294
The Springs ... ..	308	15	388	417
Hobart Observatory ... ..	122	14	157	254
Hobart Botanical Gardens ... ..	118	10	119	187
Hobart Waterworks ... ..	175	13	184	224
Glenorchy ... ..	141	—	147	151
New Town ... ..	—	—	—	169
Bellerive ... ..	98	11	119	162
Lindisfarne ... ..	92	7	106	—
Rokeby ... ..	76	6	76	195
Sandford ... ..	112	8	98	144
Freemaydena ... ..	139	9	108	179
Carnarvon ... ..	165	11	184	287
Sorell ... ..	110	9	86	145
Cambridge ... ..	78	4	162	128



## RAINFALL—continued.

Station.	1911.	Wet Days.	1910.	Average.
Craigow ... ..	—	—	104	—
Richmond ... ..	130	8	68	170
Brighton ... ..	116	8	108	123
Tea Tree ... ..	112	4	128	—
Bagdad ... ..	121	7	107	173
Broadmarsh ... ..	—	—	106	—
Kempton ... ..	91	8	66	127
Colebrook ... ..	116	9	—	—
Glen Huon ... ..	280	16	—	—
<b>MIDLAND.</b>				
Spring Hill ... ..	87	8	103	118
Jericho ... ..	70	6	97	—
Mt. Seymour ... ..	98	9	120	117
Oatlands ... ..	60	12	164	170
Bow Hill ... ..	—	—	169	—
Andover ... ..	70	8	119	132
Woodbury ... ..	36	4	152	—
Beaufront (Ross) ... ..	45	3	154	129
Bendeemer ... ..	43	3	318	166
Glen Connell ... ..	—	—	246	167
Campbell Town ... ..	13	2	129	142
Hanleth ... ..	20	3	92	124
<b>EAST COAST.</b>				
Kellevie ... ..	90	8	117	—
Buckland ... ..	100	7	77	—
Triabunna ... ..	56	5	203	164
Swansea ... ..	40	9	104	207
Riversdale ... ..	—	—	128	135
Cranbrook ... ..	—	—	128	145
Lake Leake ... ..	40	7	148	192
Ormsley ... ..	31	4	78	138
Fingal ... ..	58	1	125	161
Cullenswood ... ..	25	5	183	148
St. Marys ... ..	*14	1	283	—
Tower Hill ... ..	54	2	270	—
Mathinna ... ..	44	3	162	138
Scamander ... ..	26	3	129	116
St. Helens ... ..	28	5	140	149
Gould's Country ... ..	57	3	324	326
Lottah ... ..	75	8	334	351
Eddystone Point ... ..	*64	5	167	—
Boobyalla ... ..	34	4	165	181
Louisville ... ..	95	9	—	—
<b>KING ISLAND.</b>				
Cape Wickham ... ..	35	7	180	176
Yambacoon ... ..	—	—	137	136
Currie Harbour ... ..	40	5	200	—
Monk Breton ? ... ..	—	—	263	—
Surprise Bay ... ..	—	—	236	—
The Chalet ... ..	57	8	268	—
<b>FLINDERS ISLAND.</b>				
The Hermitage ... ..	—	—	236	—
Thule ... ..	—	—	176	141
White Mark ... ..	—	—	166	—
<b>OTHER ISLANDS.</b>				
Kent Group ... ..	—	—	88	184
Goose Island ... ..	—	—	131	138
Cape Barren Island ... ..	38	7	150	188
Swan Island ... ..	—	—	149	—
Maatsuyker Island ... ..	—	—	231	303

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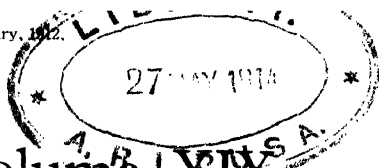
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